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Industry these days needs softened iron-free water—

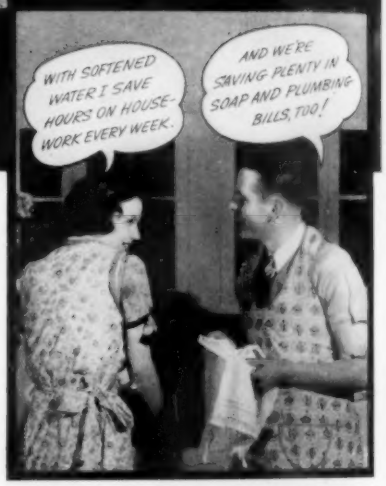
IT'S EASY TO GIVE IT TO THEM!

Today smart business men, seeking new factory sites, stop, look and listen when they hear the magic words, "Conditioned Water." That's because modern industry knows that conditioned water saves them *thousands* of dollars every year. So if your town offers conditioned water, you've got something on other towns. You've gone a long way toward winning new industries!

IT'S SMART BUSINESS IN OTHER WAYS

Taxpayers love conditioned water! For conditioned water saves as much as $100.00 per family per year! Nation-wide tests prove that. Conditioned water cuts down soap and fuel bills. Makes clothes and linens last 20-40% longer. Practically ends costly plumbing repairs!

Permutit water-conditioning equipment also takes dirt, iron, bad taste and odor out of your water supply. It will pay you to get all the facts about water-conditioning from the world's largest maker of that equipment, The Permutit Company, Dept. G3, 330 W. 42nd St., New York, N. Y. Write for free literature.



CHEER UP THE TAXPAYERS

Clear, softened water brings new joy into homes. By eliminating sticky soap curds, it makes dishes and glasses gleam. Makes laundry really clean. It's a grand beauty treatment, too. Makes skin feel so clean, so fresh. Makes hair so fluffy, so lustrous! Yes, taxpayers say, "Hooray for softened water!"

PERMUTIT SPAULDING PRECIPITATOR REVOLUTIONIZES COLD LIME TREATMENT

This latest development softens water by the cold lime treatment process. It produces a clear effluent low in hardness, using a relatively short detention period. Smaller settling tanks may be used.

Permutit

The Water Conditioning Headquarters

over 25 years

When you write for that catalog, kindly mention THE AMERICAN CITY.

WPA Changes Urged--Measuring Activities

Immediate Change in WPA Policies Urged

ASSERTING that the policies of the Works Progress Administration have brought about a concentration of the great majority of relief workers on construction projects, and that these relief workers are displacing trained construction workers in their own field, the Governing Board of the Associated General Contractors of America went on record last month in favor of an immediate revision of relief policies to recognize the prior right of the employees of the construction industry to work on the construction projects financed by the relief appropriations.

The association recognizes that relief is necessary during emergency periods and must be provided, President E. P. Palmer stated, but this cannot be fairly accomplished at the cost of destroying the construction industry. The association has always militantly opposed day-labor construction operations, and the experience of the past three years under WPA's program has amply justified, in Mr. Palmer's opinion, its assertion that such construction work is expensive and does not produce structures of corresponding benefit to the communities in which they are erected.

The Board has given its hearty support to the activities inaugurated in many states to arouse public sentiment against a continuation of the old WPA policies under the new relief appropriations. It endorsed the activities of the local units of the association in gathering the support of all elements in the industry to protest the day-labor program and called on all its members to present the facts about the day-labor situation to civic groups of all types.

At the same time the Contractors' Board adopted a resolution protesting the reductions in funds for highway construction made by the Senate recently. The highway program requires that the Federal aid be continued in the same amounts as in the past few years, the resolution stated, and pointed out that further unemployment will result from reductions in the road program.

Measuring Costs of Public Housing

ENDING a series of uninformed or misinformed guesses concerning the cost of the slum-clearance and low-rent housing erected by the Public Works Administration, the Bureau of Labor Statistics of the Department of Labor reported last month to Administrator Harold L. Ickes that it had completed a detailed cost study of 33 of the 51 PWA housing projects.

The average construction cost of the dwelling facilities erected by the PWA in the 33 projects studied, the Bureau said, was $4,126 per family dwelling unit. This figure does not include land cost, but covers only construction of the dwelling facilities.

The 33 projects surveyed include 17 Southern and 16 Northern projects. They represent all the PWA housing projects on which the Bureau has complete cost figures. The projects now are being administered by the United States Housing Authority under the terms of the United States Housing Act of 1937.

The average construction cost per room in the 33 projects, the Bureau reported, was $1,169. For these prices planned, fireproof structures capable of a useful life of 60 years were erected. All rooms are outside rooms; cross-ventilation is a feature of every apartment and house; sunlight reaches every room, and living units are equipped with full modern kitchen and bathroom equipment. Prevailing wages were paid on all projects, and hours of work were limited to enable spread of employment.

The Bureau of Labor Statistics reported to Administrator Ickes that in computing the average costs on the PWA housing program, it followed the identical procedure it uses in reporting private residential building costs throughout the United States as the official Government reporting agency. It has made such reports for 17 years.

In following this procedure, the Bureau did not include in the $4,126 figure the cost of such items as street paving carried out in connection with projects; electrical distribution systems outside of buildings for yard lighting, etc.; social and recreational buildings; rentable office buildings, trunk-line sewers and the like. If such items were to be included, the resulting total contract price per dwelling unit would be $4,358, and the total contract price per room would be $1,235. Because such items are excluded in computing private residential construction costs in its reports, the Bureau eliminated them in making its PWA study.

Determination of the figures, based on actual construction contract prices and payments, ends a controversy which has been carried on for some time. Numerous individuals from time to time have made assertions as to the cost of PWA housing projects based on conjecture and opinions. Determination of the $4,126 unit figure and the $1,169 room cost figure removes all basis for exaggeration. The actual figures, arrived at by careful, accurate cost accounting, compare favorably with the average for the country as a whole, the Bureau reported to Administrator Ickes.

Considerable variation was found in costs between Southern and Northern projects, the Bureau reported. The average dwelling unit cost for the 17 Southern projects was $3,568, and the room cost averaged $1,060. The average dwelling unit cost for the 16 Northern projects was $4,472 and the average room cost $1,232.

The projects surveyed included both large and small developments. Geographically, they are located from Birmingham, Ala., to Stamford, Conn., and from Atlantic City, N. J., to Dallas, Texas. In size, they range from a 50-unit development at Wayne, Pa., to the largest slum clearance project in the nation, the 1,622-unit Williamsburg Houses in New York City.

Means of Measuring Municipal Activities

ELEVEN chief activities of local government—police, fire, health, welfare, personnel, finance, planning, recreation, public works, education, and library service—are discussed in a 102-page pamphlet, "Measuring Municipal Activities," just published by the International City Managers' Association, of Chicago. This important study represents an attempt to devise a new kind of yardstick to measure city government in terms which the public can grasp and by which the administrator may profit.

In contrast to the familiar ways of appraising governmental efficiency in terms of tax rates, total expenditures, man-hours and amount of work performed, the new measurement method reduces the information to two points: "What results are obtained?" "Are they obtained in the most economical manner?" Behind the measurement method lies the development of detailed records systems on each municipal activity, designed to enable the compilation of uniform statistics. From this information, over a period, "indices of result" will be constructed to measure the attainment of objectives. Techniques are suggested for reducing data from different cities to the same basis and from the same city for different years.

Twenty-nine suggested model monthly forms for reporting the essential data are shown in the study. Some of these records have been used by certain cities for some time, mainly for police and public works activities.

"I WANT A TELEPHONE IN THIS HOUSE!"

"SUPPOSE I get sick? After all, I'm only human. And if I do get a touch of colic . . . or have a nervous breakdown . . . do you know what'll bring it on? Worry! Yes, sir, worrying about how long it would take us to get the doctor if anything should happen.

"Or suppose a pipe bursts in the bathroom? Or a burglar comes along? When something like that happens you don't write a letter, or go after help on horseback. No, sir. You hop to a telephone!

"And what about my mother? She's got marketing to do. Sometimes she needs to get in touch with Dad during the day. And there are errands to be run. Well, she can't do all those things without a telephone . . . and at the same time give me the attention I expect.

"All Dad needs to do to have a telephone is get in touch with the Business Office. I'd do it myself if I could just get out. But I can't. So is it any wonder that worry is keeping me awake half the day?"

BELL TELEPHONE SYSTEM

Our Municipal Notebook

What Burns Is Gone Forever

THE essential value of having a strong, efficient fire department is seen by a casual look at fire losses. Take any month, say October, 1937, and run your eye down the list of municipalities. Here, for example, are the per capita losses in round numbers for ten communities:

	Population	Fire Loss Per Capita
Cushing, Okla.	9,301	$ 9
Ephrata, Pa.	5,000	12
Kane, Pa.	6,232	8
Lexington, Mo.	4,595	11
Lewisburg, Pa.	3,308	21
Lynden, Wash.	1,564	32
Moody, Texas	1,041	50
Ruston, La.	4,400	17
Thomasville, Ga.	11,933	5
Wortham, Texas	1,404	36

How many of these places are equipped with (1) adequate water supply for fire purposes; (2) first class fire-alarm system with a sufficient number of boxes; (3) modern fire apparatus and sufficient hose of good quality? This little table is only a sample of what is happening every month. Seventy per cent of the fire loss occurs in communities of less than 20,000 population, and it is said that 43 per cent of the establishments destroyed by fire do not rebuild.

Good Transit

IN the industry of local transportation, even the bus drivers are now "salesmen," and a salesman of urban transportation cannot sell with a poor sample. His selling equipment, in addition to courtesy, information and a smile, is a modern vehicle well-driven.

Everyone knows, however, the human tendency to hang on to a thing as long as it will hang together and three-quarters-way do the job. Consequently, city officials cannot leave entirely to the discretion of the company management the matter of replacing old vehicles with modern vehicles. There are times when this needs to be done and can be done, but is not done. There are also times when the company is not in a financial position to purchase new vehicles. In both cases, the mayor and council can very definitely be helpful to both the company and the riding public.

Good Light in Difficult Places

IT IS against all the principles of business—including municipal business—to waste the time of the man in overalls. If he cannot see well, he cannot work fast and the quality of his work also will be uncertain. A pit for servicing motor vehicles is one place where good lighting is essential to good work. This is provided by the Detroit Department of Street Railways in the service pits of the new municipal garage by means of Holophane 200-watt vapor-proof units mounted in niches as shown. These provide an intensity of 12 foot-candles on the bottom of the bus. The light is indirectly reflected from the white painted concrete walls and aluminum tread-plate of the floor.

The result is high-intensity, well-diffused lighting free from glare, which permits the service man to make repair and maintenance operations quickly, safely and easily. Aluminum covers reduce breakage and keep clean these units which are approved by the National Board of Fire Underwriters. Speed, safety and facility are watchwords of today, and scientific lighting in office, shop, yard and street contributes materially to their attainment.

TWIN COACH OF YOUNGSTOWN (OHIO) MUNICIPAL RAILWAY

HOLOPHANE UNITS IN PIT LIGHT THE UNDERSIDE OF DETROIT'S 1,082 FORD BUSES

The Intimate Glimpses on the Cover

WHAT it takes to run a municipality is only hinted at on the cover of this issue; but the personalities shown make the hint pretty strong. It takes good men with today's ideas, using ample modern equipment.

In the center is City Manager Harold W. Baker; at his left is Henry L. Howe, City Engineer, and on his right is Olive O'Grady, who records how the budget appropriations are spent.

At top left is Water Works Superintendent Meloy Smith; at top right is City Comptroller Louis B. Cartwright, whose machines record expenditures and write and address the tax bills for 60,000 parcels. At top center is E. L. Verton Beebe, Chief Probation Officer of the City Court, a firm believer in letting the machine do everything but the thinking.

Below Mr. Howe and Mr. Baker is a view of the Tax Bureau described on page 65 of this issue. At the right is Florence Delaney at an I. B. Machine that sorts the water tabulating cards, explained on page 89 of this issue.

At bottom left, with hand on Todd check signer, is Thomas Cashman, Claim Investigator, and with back to the signer is Albert L. Kaufman, Counter Clerk in the Treasury, using a Monroe calculator to compute interest on delinquent taxes.

Intimate glimpses of the day's work of busy municipal officials.

ELEVATED STORAGE IN HOLLAND

THE recent installation of the attractive 500,000-gal. "Colonial" design radial-cone bottom tank pictured at the left is an important factor in the Holland, Mich., water supply system. Prior to the installation of this modern elevated storage tank, Holland was troubled with low water pressure during peak demand periods, particularly in the Southwest section. Since this new installation has been in service there has been an ample supply of water at adequate pressure throughout the entire city.

This illustrates only one of the many benefits available through the use of modern elevated storage tanks. For complete information about Horton tanks, address our nearest office.

Founded in 1847 by Dutch settlers, Holland today has approximately 30,000 inhabitants, most of whom are of Dutch descent. Each year the people of Holland set aside a week in May for their "Tulip Festival," celebrating the blooming of their world-famous tulips. One of the most interesting features of the Festival is the opening ceremony, which is devoted to street scrubbing. Hundreds of men and women in Dutch Costumes, engage in scrubbing the streets of "Tulip Town" until they are spotlessly clean.

CHICAGO BRIDGE & IRON COMPANY

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Cleveland.....2230 Rockefeller Bldg.
Detroit.....1501 Lafayette Bldg.
Philadelphia. 1616 "1700" Walnut St. Bldg.
Boston.....1501 Consolidated Gas Bldg.
Birmingham.....1502 N. Fiftieth Street
Dallas.....1406 Liberty Bank Bldg.
San Francisco.....1033 Rialto Bldg.
Houston.....2919 Main Street
Tulsa.....1625 Hunt Bldg.
Los Angeles.....1403 Wm. Fox Bldg.

Fabricating plants in CHICAGO, BIRMINGHAM, and GREENVILLE, PA.

Water Works and Air Conditioning

A Discussion of Air-Conditioning

USE of the public water supply in air-conditioning poses problems for municipal public works departments that demand solution in the near future, according to Frank W. Herring, Executive Director of the American Public Works Association. Air-conditioning installations, as reported by the U. S. Department of Commerce last July, have grown about 1400 per cent during the past four years; continuing increase is anticipated with new construction and modernization of public buildings and homes.

There are two principal types of air-conditioning apparatus now in use: one that recirculates the water after its first use; the other using water only once, and discharging it directly into the sewerage system. The latter type, more common and less expensive, puts a double demand on city utilities; intake for the air-cooling systems from the water supply; and discharge facilities into the sewerage system. To meet this situation, cities have a choice of either expanding their present water and sewer facilities at great expense, or regulating their use by air-conditioning plants.

Regulating the use may mean permitting only the installation of the type of air-conditioning that utilizes the water more than once, according to Mr. Herring; requiring a permit for installations that would not be granted if sewer or water facilities were found inadequate; ordering the shut-off of all air-conditioning machinery when a heavy rainstorm occurs.

Thus far, according to Mr. Herring's report, city law books have few ordinances on air-conditioning, although the Department of Commerce survey stated that 37 of 92 cities reporting had been compelled to restrict the further use of water for air-conditioning installations. Only six of the thirty cities that make sewer-rental charges on a volume basis had given consideration to special rates for the discharge of water from air-conditioning plants.

These are among questions which cities must answer about air-conditioning with regard to their water supply:

What is the hazard of pollution of the water supply when there is a direct connection of air-conditioning systems to sanitary and storm sewers?

If private wells are used as the water source, what are the possibilities of contamination of the public supply if cross-connections are made?

If the wells are dug in the street area, will a traffic hazard be created when they require repair, and will there be any interference with underground construction?

If city storm sewers are able to carry off the additional burden imposed by air-conditioning systems, can they at the same time bear the load of a large storm?

As is usual in most discussions of this general subject, this report of the American Public Works Association does not differentiate between air-cooling and air-conditioning. Most air-cooling systems in the Midwest and South rely upon privately owned wells and do constitute a potential burden on the sewers of the city. True air-conditioning systems, on the other hand, are too elaborate and too expensive to warrant the waste of any water, and consequently most of them rely on cooling towers in which the water is used repeatedly. The American Public Works Association also must realize that the problem of cross-connections was a serious one in American municipalities long before air-conditioning or air-cooling became a rapidly growing industry. Water-works officials will be just as keen to watch for illegal cross-connections and improperly protected cross-connections to the water systems of air-cooling and air-conditioning systems as they have been watching for those between private and municipal water-supply systems.

If American municipalities are to continue to grow, they must face the new industry of air-conditioning as one which contributes to the health and comfort of taxpayers and citizens. Some regulation must be required where careless installation and careless operation are noted. But this new industry is wide-awake and through its own trade organizations is doing its utmost to furnish a service to mankind without imposing any additional unwarranted burdens on the facilities of any progressive city.

A Brief History of U. S. Water Supply

CONSTRUCTION for the procurement, extension, and betterment of water supplies and distribution works in the United States has a normal annual dollar volume at present prices of about $150,000,000, or a little more than $1.15 per capita per year. It is obviously a large field, which is increasing in importance with the trend in consolidation of farm operations and the continued long-time growth of urban centers of industrial activity. There were only 17 water works in the United States 136 years ago, all but one of which were privately initiated, constructed, and owned. Twelve years ago there were 9,850 water works, only 30 per cent of which remained in private ownership. The established trend in public ownership of water works has continued at an accelerated rate in recent years. Today there are probably no less than 50,000 employees engaged in operating water works, and possibly three times this number, on the average, are employed in the manufacture and transportation of water-works materials, equipment and supplies, and in building new works and extensions and betterments of existing works.

Two-thirds of a century has elapsed since the construction of the first filters for a municipal water supply to be built in the United States at Poughkeepsie, N. Y., in 1870, but general appreciation of the importance of pure water supplies in promotion of health and protection of property has developed within the present century. Chlorination of water supplies did not begin until 1908, and the first standard for drinking water for use in interstate commerce issued by the Public Health Service of the United States Treasury Department did not appear until 1914. By 1919 state divisions of sanitary engineering had been established in 43 states, most of them having power to pass upon plans for water-works improvements. In a group of 20 large cities with typhoid death rates in 1900 ranging from 13 to 144 per 100,000, such death rates were reduced by 1920 to a range of from 1.1 to 7.4 per 100,000. Technological development of water works has taken place almost entirely in the present century, following the demonstrations of a vanguard of workers at the Lawrence Experiment Station, established by the Massachusetts State Board of Health in 1887, and the Louisville Experiment Station, where the problem of clarifying turbid river waters for municipal supply was studied in 1896.

—From the National Resources Committee report on "Technological Trends and National Policy." This material was prepared by MALCOLM PIRNIE, consulting engineer, New York City.

A Record for Meter Readers

THE most prolific reader in the Water Bureau of Los Angeles, Calif., is reported to be L. C. Seefred. Mr. Seefred's reading is confined largely to figures, figures which tell how much electricity or water was used by consumers during the month. During his twenty years' experience in that work he estimates that he has read more than 1,500,000 meters.

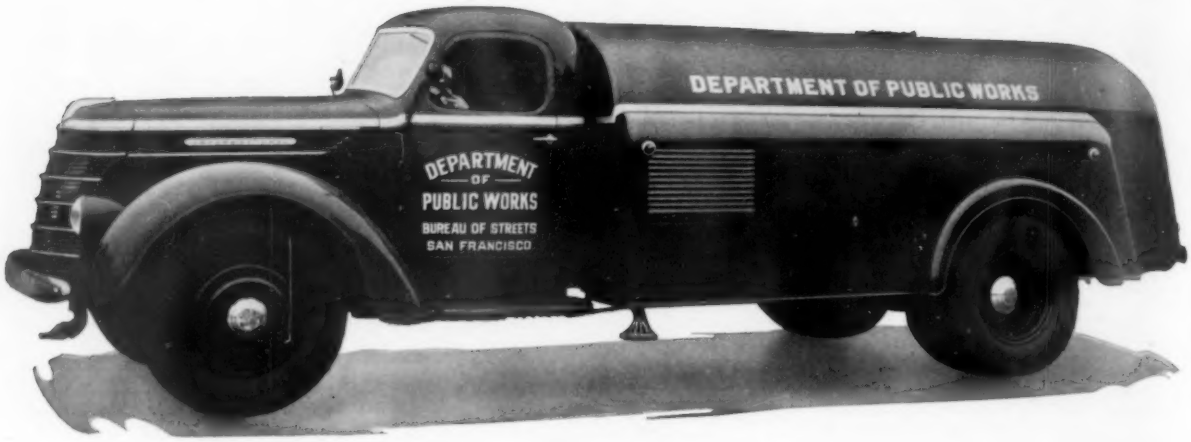
There is hardly a section of Los Angeles that he does not know intimately. He has jotted down the records of industrial plants, office buildings, large and small stores, fine homes and dilapidated shacks, and Chinatown's mysterious buildings, as well as countless other classifications of consumers.

Mr. Seefred has another record of which he is particularly proud; namely, that of being designated by the Radio Relay League as one of the five amateurs who were leaders in the first 20 years' development of radio. In his home is a small but interesting museum of electrical and radio apparatus.

N. E. W. W. A.
Sept. 13-16, 1938, Boston, Mass.

WHY . . . Cities, large and small, the world over, prefer—

ETNYRE STREET FLUSHERS

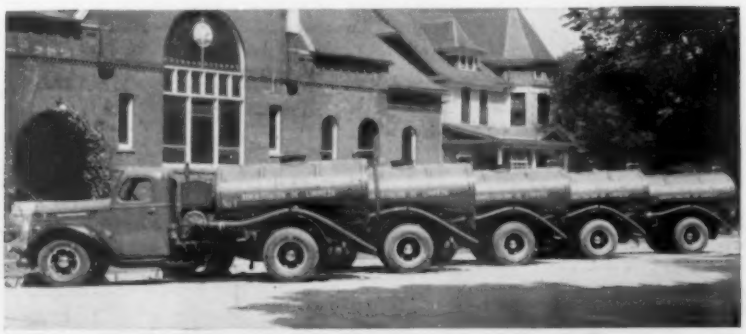


SAN FRANCISCO *"Streamliner"* . . . Latest, Modern Design

City officials, desiring cleaner streets at lower cost, invariably select Etnyre . . . America's Leading Street Flusher which washes *under* "parked cars," flushes entire street width in one trip forward, removes "flying dust" and solves *every* street cleaning problem. *Your* city, large or small, can have modern streamline, regular truck or trailer mountings, as shown. Etnyre Flushers, in tank capacities 600 to 3000 gallons, powered by separate 4 or 6 cylinder engine, with pump pressure up to 125 lbs., have 2, 3 or 4 nozzles . . . with extra attachments for street-sprinkling and oiling, sewer cleaning, tree-spraying, pumping flooded basements and FIRE-FIGHTING. *Your* city can enjoy *dustless. sanitary streets* . . . at lower cost . . . with an Etnyre Flusher . . . now.

ETNYRE STREET FLUSHERS Lead in Foreign Countries, Also

Etnyre Flushers are as popular in foreign countries as in U.S.A. Shown below are 5 of 11 recently shipped to Argentine, South America. These Etnyre's, 1200 gallon size, have separate 4 cylinder engine, equipped with 3 flushing nozzles; sprinkler heads for street sprinkling and the Etnyre FIRE-FIGHTING attachment. *Your* city, large or small, can similarly use Etnyre Flushers for cleaner streets at lower cost.



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E. D. ETNYRE & CO.
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Disposal of Municipal Wastes

AN ALLIS-CHALMERS MODEL M TRACTOR WITH "SADDLE BAG" SLUDGE HOPPERS USED FOR HAULING FROM THE SLUDGE DRYING BEDS OF THE SEWAGE-TREATMENT PLANT AT MANSFIELD, OHIO

Sewerage Facilities in the United States

SEWERAGE facilities have been provided for approximately 72,000,000 people in the United States. Of this number, approximately 37,000,000, the equivalent of more than half the entire urban population, now discharge treated sewage into bodies of water. Five years ago, approximately 31 per cent (19,500,000) of the urban population was provided with sewage-treatment facilities through 2,900 plants. Today, more than 3,700 plants serve a population in excess of 37,000,000. In the five years since 1932, therefore, much progress has been made in abating the pollution of bodies of water by sewage. This progress has been due chiefly to increased public interest and to unprecedented financial support by the Federal Government in the construction of abatement works.

Unfortunately, progress in the abatement of pollution by industrial wastes has been less rapid and less uniform than that in the field of domestic sewage treatment. Highly useful research on new methods of treatment and new methods of recovering by-products has been carried on, but many important wastes cannot yet be treated effectively at reasonable cost. It is much more difficult to develop satisfactory methods for the treatment of industrial wastes than for the treatment of domestic sewage, because of the dissimilar and varying character of the waste products from industrial processes. Relatively satisfactory methods are now available for alleviating the objectionable effects of wastes from bituminous coal mines, coke plants, corn-products factories, gas works, distilleries, petroleum refineries, and vegetable canneries. Important, but not definitive, results have been obtained in the disposal of packing-house, pulp and paper, dairy, and tannery wastes.

—From Section V of the February, 1938, Report on Drainage Basin Problems and Programs of the Water Resources Committee of the National Resources Committee.

Garbage Men Made Social Lions

THE Rotary Club of Ridgefield Park, N. J., a little over a year ago gave a dinner at which the village's garbage collectors were the guests of honor. The Rotarian who suggested this put up the argument that these men are the real "forgotten men" and no one ever gives them the recognition they really deserve. The Ridgefield Park Rotarians extended the invitation and put on one of the best dinners in the history of the Club.

To prove that the collectors really appreciated this, an invitation was extended by the Department of Public Works to the Rotary Club to a dinner to be given by the garbage collectors on November 20, 1937, in the Public Works garage. The Rotarians agreed, at the end of the dinner, that the compliment paid to the garbage men the year before had been amply repaid.

EDWARD HOVERMAN,
Superintendent, Department of Public Works,
Ridgefield Park, N. J.

Cooperation De Luxe

ACCORDING to a recent report in Elgin's *Street Cleaner*, San Antonio, Texas, has been waging a spirited campaign for proper garbage disposal, insisting, among other stipulations, that suitable refuse containers be provided by the city's residents. Imagine the surprise of one of the collecting crews recently when one morning they were greeted by a row of forty brand-new garbage cans neatly lined up along a certain street, each can decorated with a bow of bright red ribbon. Carefully, yes, almost tenderly, the collectors lifted each receptacle, deposited its contents in the trucks, placed each can back in its exact position, the ribbon still intact.

THE INCINERATION OF REFUSE

A reprint of three valuable articles available to readers of THE AMERICAN CITY. Price 25 cents postpaid.

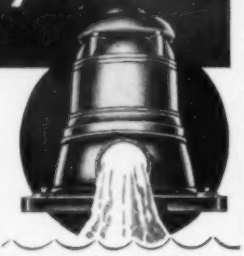
Garbage Has a Silver Lining

Acme Photo

THIS BRIDE'S HOPE CHEST IS FILLED WITH SILVER PICKED FROM ELGIN, ILL., GARBAGE COLLECTED BY FERN WEAVER IN HIS ROUNDS

Mrs. Weaver is shown with the chest of over 400 pieces of silver and cutlery, and even opera glasses, retrieved from table waste thrown out by maids and housewives

Photo by Fairchild Aerial Surveys, Inc.



With a daily production capacity now in excess of 50,000,000 gallons of water from more than 40 Layne Units, Jamaica, Long Island, has easily, economically, and satisfactorily kept a step ahead of a rapidly growing population. By decentralizing their three original central stations, which quickly would have become inadequate, their Layne Wells and Pumps are now spaced over a forty square mile area. Such an arrangement has assured an ample supply of water at all times, and provided for further expansion as their water demand increases. Since 1920 Layne Wells and Pumps have served the Jamaica Water Supply Company, and the record of low upkeep cost and high efficiency is typical of Layne installations throughout the Nation.

AFFILIATED COMPANIES

Layne-Arkansas Co., Stuttgart, Ark.
Layne-Atlantic Co., Norfolk, Va.
Layne-Central Co., Memphis, Tenn.
Layne-Northern Co., Mishawaka, Ind.
Layne-Louisiana Co., Lake Charles, La.
Layne-New York Co., New York City and Pittsburgh, Pa.
Layne-Northwest Co., Milwaukee, Wis.
Layne-Ohio Co., Columbus, Ohio.
Layne-Texas Co., Houston and Dallas, Texas.
Layne-Western Co., Kansas City, Mo., Chicago, Ill., Minneapolis, Minn., and Omaha, Nebraska.
Layne-Bowler New England Company, Boston, Massachusetts.
International Water Supply, Ltd., London, Ontario, Canada

An inadequate water supply is a serious flaw with any city or industry. If you have plans for increasing your water supply, let one of our engineers counsel with you. His advice and help will be very valuable. For literature address, LAYNE & BOWLER, Inc., Dept. B, Memphis, Tenn.

LAYNE

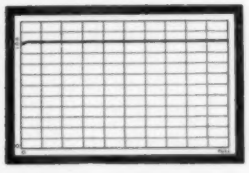
PUMPS & WELL WATER SYSTEMS

For Municipalities, Industries, Railroads, Mines and Irrigation

"First Quality Meters Exclusively"

Depend upon it—

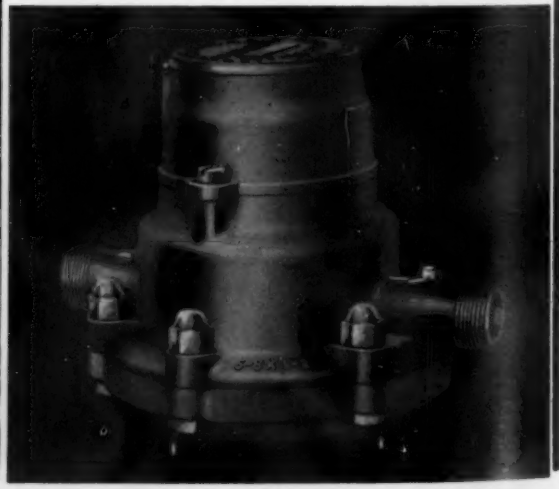
Any meter you buy from the Buffalo Meter Company has top quality design, materials and construction. We sell no second-line of meters.



Straight-line accuracy of Buffalo-made meters earns full revenue for every waterworks user. They reduce discrepancy between master meter and service meter totals.

No wonder that American or Niagara Meters have won a majority of all tests in which they have been entered in recent years (the latest one by a 9.2% margin). The accuracy is built into these meters by the extra-thick disc; hard metals, to wear well; accurate machining and individual calibration.

BUFFALO METER COMPANY
2902 Main Street **Buffalo, N. Y.**



City Streets and Sidewalks

RIO DE JANEIRO, BRAZIL, IS BUILDING THIS NEW STREET THROUGH THE CENTRAL PART OF THE CITY, USING A CATERPILLAR DIESEL NO. 10 AUTO PATROL FOR THE GRADING

Snow Removal in Wausau, Wis.

FOR snow removal service in Wausau, Wis., there are two 3-ton FWD trucks with V-plows and an Austin-Western No. 99 4-wheel-drive grader equipped with a V-plow in front and one wing on the right side. We also have two Caterpillar Thirties and one Sixty with V-plows and wings on both sides, and two Warco Road Hog graders and two 4-wheel-drive trucks with one-way plows, which are used in the business district. A home-made snow loader built on an old Fordson grader helps to load the 20 to 28 dump-trucks, with the 100 men who are hired whenever the snow reaches a 6-inch depth.

Work is started at 11:00 P. M. after a snowstorm, and always the main part of the city is cleaned up by the time business places open in the morning. Then the snow removal forces are moved to the outlying streets. We have to haul all the snow from about 7 miles of streets, and then there are 90 miles from which we plow the snow.

For icy roads we use salt and sand on level streets, and cinders on hill streets. A group of about 20 men take care of sanding sidewalks. The cost of this service is charged back to the property owners, the total cost varying from $500 to $800 for a season.

The cost of snow removal has been:

1933-34	$8,500
1934-35	12,000
1935-36	17,120
1936-37	17,500*

* To the 1936-37 figures should be added $2,200 for extra equipment.

R. J. HOENISCH,
Street Commissioner.

Use of Asphalt for Sidewalk Construction and Reconstruction

AN unusual example of the revamping of a concrete sidewalk was reported by W. R. Macatee, District Engineer of The Asphalt Institute, in a paper presented before the Highway Engineers Association of Missouri in Kansas City. In Asheville, N. C., 8 or 10 miles of old, disintegrated, two-course portland cement concrete sidewalks were reclaimed from an unsightly and dangerous condition. Engineers resorted to resurfacing, and the progressive disintegration was arrested with a cold-laid, sheet grading type of asphaltic mixture, which was hand-rolled by WPA workers.

This report of resurfacing of concrete sidewalks is of interest largely because of its novelty. Therefore, it can hardly be regarded as a definite trend, according to Mr. Macatee. It has, however, been observed that in cities with municipally owned asphalt plants there is a definite trend toward the use of asphaltic mixtures for new sidewalk construction. For example, a 2-inch cold-laid type of asphaltic concrete sidewalk on a cinder base is being used in Cincinnati, Ohio.

TWO MEN IN FIVE DAYS MADE OVER A HALF-MILE OF JUNIPERO AVENUE, SIGNAL HILL, CALIF., WITH THIS OUTFIT

Using 14 gallons of fuel oil per 8-hour day, this International TD-40 diesel TracTracTor, with a Killefer ripper and an Adams blade grader, scarified, disked, mixed the material with oil, and re-spread the material ready for traffic between Tuesday morning and Friday afternoon

ELEMENTS of PUBLIC SAFETY

GAMEWELL

Fire Alarms

ADVERTISE PUBLIC SAFETY

Many officials and citizens apparently still believe that because community Fire Losses are low — or lower than they have been — no necessity exists for improvements in fire protection. In this unsound and dangerous opinion, there exists the reason for many future conflagrations. The Fire Record affords ample evidence of the danger of unpreparedness —and of staking human life and property on the gamble that "It Can't Happen Here!"

It is good business to invite new industries to locate in the home town but better business to first protect those already established. It is bad advertising for a community to lose an industry by Fire.

Prompt alarms eliminate serious fire loss. Render Gamewell fire alarm boxes— accessible and visible—at all points of Fire Hazard. *Let taxpayers see what they are getting for their money.*

Police Signals

Write for descriptive literature.

THE GAMEWELL COMPANY

NEWTON UPPER FALLS MASSACHUSETTS

Public Safety

Modern Fire and Police Signals at Haverhill

By RUFUS A. CRITTENDEN
Chief, Fire Department, Haverhill, Mass.

Three-fold fire alarm!
More boxes!
Loud speaker!
Police signaling system!
More underground cables!

EXTENSIVE improvements in the fire-alarm and police signaling systems of Haverhill, Mass., have speeded up the service all along the line.

The fire-alarm equipment is of the automatic and manual type, by which an electrical relay repeater automatically retransmits to the fire stations over the primary alarm circuits the alarms received from boxes, immediately following which each alarm is confirmed over the secondary alarm circuits by a manual transmitter.

The manual transmitters—one for the primary and one for the secondary alarm circuits—can transmit any number from 1 to 9,999. A feature of the transmitters used in the new Haverhill system is the speed with which they may be set by merely turning knobs to any number within their capacity. In addition to the confirmation of box alarms automatically transmitted to the fire stations, the transmitters also send to the fire stations all alarms received by telephone; first over the primary alarm circuits, with confirming signals over the secondary circuits.

The fire-station alarm and recording devices consist of the conventional electro-mechanical gongs and registers, plus an electric-light switch which, on receipt of an alarm, automatically turns on the lights and after a predetermined period—adjustable from two to seven minutes—turns the alarm off.

Loud-Speaker

The Vocalarm loud-speaker system amplifies at headquarters and in the fire stations all telephone communications and instructions, shortening their time reception by eliminating any necessity for the repetition of instructions. All firemen on duty anywhere in the fire stations hear the instructions and govern their actions accordingly. The system at Haverhill utilizes the alarm circuits for voice transmission and provides for two-way and intercommunicating service between headquarters and all fire stations.

New Police Signals

The police signaling system is of the Gamewell combination telegraph and telephone type with patrol boxes located at strategic points throughout the city. The boxes provide for the transmission of officers' reports or "on duty" signals, emergency signals enabling the patrolmen to obtain immediate assistance when necessary, and telephonic communication with the police station and with any other patrol box in the city. In addition to being a powerful influence for the prevention of crime and the apprehension of criminals, the signal system by ensuring the proper patrol of the fire district, contributes materially to the discovery of fires in their incipiency and a consequent reduction in the fire hazard.

LOUD-SPEAKING TO FIRE STATIONS
Fire-Alarm Operator Rowell O. Currier of Haverhill, Mass., seated at telephone switchboard with the Vocalarm equipment behind him

Parking Meters Inevitable, Says Illinois Auto Club

THAT parking meters will, in time, become as essential to municipal traffic regulation as are traffic signs and signals, is freely predicted by many far-sighted public officials and civic and safety leaders, who regard them as a guarantee that the limited parking space available shall go to those willing to pay for it and not to those first able to appropriate it. Parking meters are entitled to a trial.

—From *Illinois Automobile Magazine*, organ of the Illinois Auto Club.

Better Brakes in Knoxville

HERE are answers to three vital questions about our City Inspection Station for motor vehicles:

Q. Do you approve of it?
A. Yes.
Q. Have the results been beneficial?
A. Yes.
Q. Can you name results?
A. Improvement of lights, 75 per cent.
Improvement of brakes, 25 per cent.
Improvement of wheel alignment, 50 per cent.

Since we have been operating our inspection station the mechanics have found broken spindles, springs, frames, and other minor defects, so we feel confident that the station has been of great assistance to motorists of our city. We require that the motorist buy a city license tag, the cost of which is $1.

O. T. ROEHL,
Director Public Safety, Knoxville, Tenn.

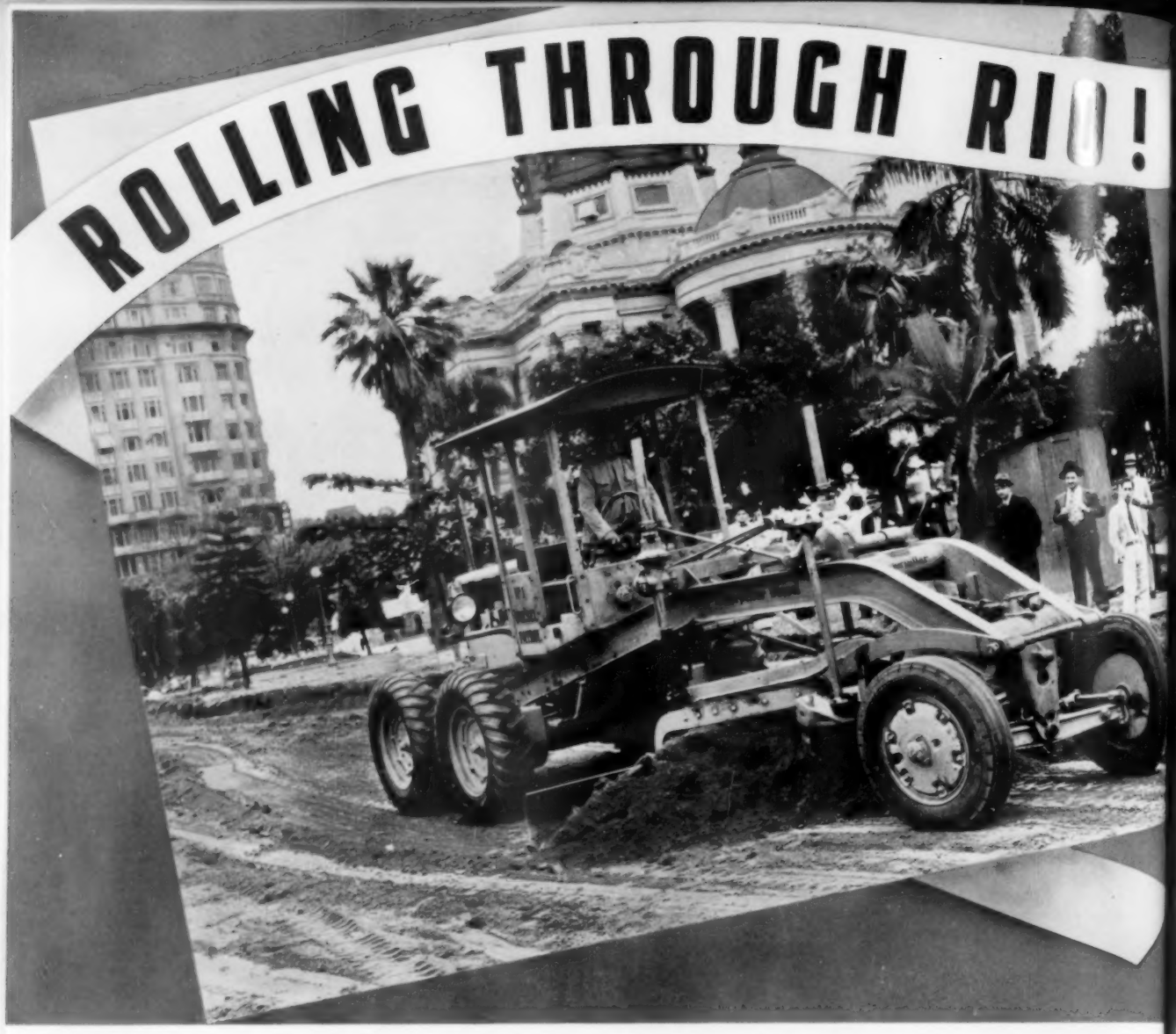
Municipal Crime Reports

NEARLY 4,000 police departments submitted crime reports to the Federal Bureau of Investigation in 1937, more than tripling the figure for 1930, when such reports were first filed, says Public Administration Service.

Virginia Legalizes Parking Meters

THE Virginia Legislature passed a bill legalizing parking meters on March 10 last. Norfolk has used them since February, 1937.

ROLLING THROUGH RIO!



GOOD news travels fast—and far! And here, in this picture, you have evidence that the good news about the "Caterpillar" Diesel Auto Patrol has reached Rio de Janeiro, Brazil.

First of all, the "Caterpillar" Auto Patrol uses only about 1½ gallons of inexpensive fuel per hour. Secondly, it does many jobs—saves you from buying and maintaining a number of different types of street equipment which stay idle a good part of the time.

This is a combination of *several* machines! It not only builds streets, but keeps them fit the year around. For the Auto Patrol grades . . . scrapes . . . scarifies . . . makes and maintains shoulders and ditches along concrete . . . prepares streets for winter . . . removes snow when it comes . . . reconditions when it goes!

Because the Auto Patrol does all that work, its cost can be spread pretty thin. Then, when you figure the savings on maintenance and repairs that its ruggedness gives . . . the savings on fuel . . . the savings on time as it moves from job to job at 10 miles per hour . . . and its working speed (through its power, traction and efficiency), you'll know that an Auto Patrol should be rolling through *your* city as well as through Rio!

CATERPILLAR

REG. U.S. PAT. OFF.

TRACTOR CO., PEORIA, ILL.

DIESEL ENGINES • TRACK-TYPE TRACTORS • ROAD MACHINERY

JUNE, 1938

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The American City

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New York State's New Planning Laws Strengthen Subdivision Control

By WAYNE D. HEYDECKER
Director of State Planning

PLANNING boards in the state of New York have been given important new powers with respect to subdivision control by four new acts adopted by the recent Legislature and signed by Governor Lehman.

The manner in which these new changes were procured is rather significant. Under the leadership of the Division of State Planning, a conference of local planning officials, approximately 100 in number, was held in Syracuse, October 21, 1936. This was sponsored jointly by the Division of State Planning, the Association of Towns, and the Conference of Mayors and Other Municipal Officials of the State of New York. An all-day discussion dealing with the defects in the existing planning laws resulted in the appointment of a committee consisting of:

Theodore T. McCrosky, Chairman, Planning Director, City of Yonkers
Theodosia Burr, Member of the Dutchess County Planning Board
H. W. Eustance, then City Engineer of Ithaca
Fred W. Fisch, Chief Engineer of the Schenectady Housing Authority
Henry C. Klein, Chairman of the Dobbs Ferry Planning Board
Raymond Van Zandt, Chairman of the Irondequoit Town Planning Board
Arthur L. Vedder, Secretary of the Rochester City Planning Board
Edward Wells, Vice-President of the Association of Towns from Rockland County
Frederick K. Wing, then Chief Engineer of the Niagara Frontier Planning Board
Herman W. Heidgerd, then Chairman of the Rockland County Planning Board

This Committee proceeded to hold several meetings to consider appropriate amendments to carry out tentative conclusions of the Syracuse conference. Extensive correspondence with these and other officials resulted in the preparation of identical amendments to the city, town and village planning laws. The State Planning Council, head of the Division of State Planning, employed Edward M. Bassett, Counselor at Law and noted expert on zoning and planning, to review and criticize the legislation. The results of this work were submitted to a second state-wide conference in Syracuse on December 14, 1937, called by the same three agencies. Numerous amendments were added, and it is significant that every one of them strengthened rather than weakened the drafts presented by the Committee. The final drafts were then submitted to the State Bill Drafting Bureau and very carefully checked by them.

So thoroughly was this preliminary work done that the three bills were adopted by the Legislature with only one minor amendment to correct a purely accidental error. The procedure followed has been set forth in detail because it illustrates how successfully a group of practical, experienced municipal planning officials, pooling their knowledge, can produce thoroughly worth-while legislation, which by reason of its non-partisan origin and the competence of its sponsors was accepted by the Legislature without change.

Planning and Platting

In brief, this legislation—Chapter 205 affecting cities, Chapter 44 affecting villages, Chapter 264 affecting towns—does the following things:

1. *Authorizes the preparation of comprehensive Master Plans showing existing features and proposals.*

Up to the present time there has been no mention of Master Plans in the law. If planning boards customarily assume responsibility for their preparation, the Master Plan as authorized by the new act merely serves as a guide to the planning board and other city departments. It has not the binding status of an official map and it can be amended by the planning board at any time.

2. *Provides that the approval by the planning board of a new plat shall expire within 90 days, unless such plat is duly filed or recorded in the interim.*

Up to the present time, planning boards have approved plats, which upon filing in the office of the country clerk or register automatically became legal amendments to the official map, but frequently owners have delayed the filing of such maps or have decided not to proceed with the subdivision. This has left the status of the approved unfiled plats extremely indefinite. The new amendment corrects this condition.

3. *Provides that, in addition to specifications already contained in the law, plats of new subdivisions shall be so designed as to facilitate fire protection, provide streets of suitable grade, conform to the official map and be properly related to proposals shown upon the Master Plan.*

This portion of the new act also makes a very significant addition, that the land shown upon such plats shall be of such character that it can be used *safely* for building purposes with-

out danger to health or peril from fire, flood or other menace. As the law stood, the land was required to be of such character that it could be used safely from the standpoint of health, but recent experiences with the flooding of low-lying lands and the increased hazards from fire arising from the placing of dwelling districts too close to areas used for the storage of inflammables has indicated that the public safety requires the broadening of this section of the law. The language of the new acts, by including the words "peril from fire, flood or other menace," places a broad duty upon the planning boards and gives them wider powers in this respect than heretofore.

The importance of this new grant can be readily appreciated by anyone who has examined the low-lying lands flooded in recent years which never should have been permitted to be built up with residential structures. The avoidance of an ascertainable flood hazard is therefore brought within the scope of the police power.

Street and Subsurface Improvements

4. *The most important section of the new laws is one which provides that planning boards may assure soundly conceived subdivisions of a stable character by requiring the owners to install such street and subsurface improvements as are deemed necessary to the public health, safety and general welfare, or, alternatively, to furnish performance bonds covering their cost.*

Care has been taken in the new acts to provide specifically for altering the amount of the bond if the planning board finds that the extent of the development does not justify the improvements originally stipulated. This provision will tend to reduce the excessive subdivision of lands not yet ripe for building development. It is directly in line with the exhaustive findings contained in the report of Philip H. Cornick to the Division of State Planning, on the subject of the "Premature Subdivision of Urban Lands." The experience of municipalities in New York and other states has proved beyond question that the premature subdivision of lands in small parcels results in serious economic loss to the purchasers of such parcels, followed by severe tax delinquency, increased tax burdens upon other residents, and the impairment of municipal credit.

This new provision in the New York State laws is in accord with laws now in effect in several other states and conforms to modern planning theory and practice. The three cooperating agencies have become convinced that the cost of a home in a new subdivision should properly include the due share of the cost of street improvements necessary to make such a home a suitable place in which to live. The present practice of building houses on unimproved streets, without adequate water mains and sewers, and then having the municipality either pay for the improvements outright at the expense of the taxpayers at large, or make the improvements on a special assessment basis and experience heavy tax delinquency, is certainly an uneconomical and unscientific way of doing the job and definitely contrary to the public interest.

5. *Provides that the county clerk shall notify the planning board within three days after the filing or recording of any plat.*

Up to the present time, the planning board has had to rely upon obtaining this information from the owner or has had to make frequent inquiries of the county clerk or register to ascertain if outstanding approved plats have been filed. The simple requirement of the new act will correct this condition.

6. *Provides that all streets not specifically reserved by the developer as private streets shall be accompanied by specific offers of dedication.*

One of the most difficult and perplexing problems which planning boards face is the determination of whether a given street is a public street or a private street. The law formerly implied an offer of dedication for all public ways or places shown upon a plat and not specifically reserved as private streets by the notation of the owner. The new act requires the filing of formal offers for all such non-reserved streets or public open spaces.

7. *Provides that every street on a plat hereafter filed shall be deemed to be a private street until it has been formally offered for cession to the public and formally accepted.*

This also will help clarify the status of future private streets and supply a clearly defined procedure by which they may become public streets. The importance of this provision lies in the fact that it is related to the next one.

8. *Provides that no municipal improvements shall be constructed within such private streets until they have been suitably improved and accepted.*

To clinch the matter, the new law forbids the granting of any permit for the erection of a building unless it fronts upon a street or highway which has been duly placed upon the official map, which street or highway shall have been suitably improved to the satisfaction of the planning board in accordance with standards of specifications approved by the appropriate city departments as adequate in respect to the public health, safety and general welfare for the special circumstances of the particular street or highway. In this section, concerning municipal improvements in streets and buildings not on mapped streets, the new laws clarify the present provisions, making it unlawful for a municipality to construct improvements in streets not shown on the official map. It has been customary for the official map to show both public and private streets. Under the new wording, a municipality shall not construct improvements in any street until it is not only shown on the official map but has become a public street, and the importance of making the issuance of building permits contingent upon the satisfactory improvements of a street will at once become evident.

These new provisions will prevent the issuance of building permits for structures fronting on streets that are insufficiently improved with resulting danger to public health and safety. This provision, moreover, will protect public financial interest and will check the development of new insanitary areas that might otherwise become a menace and a burden to the community. It should go a long way toward preventing in the future premature subdivision of land. At the same time it should safeguard the investments of the bona fide developer, who is prepared to finance the street improvements necessary to convert the raw land which he offers for sale into genuine building plots.

New Powers Permissive

All the new powers granted are permissive. They are not self-enforcing. It remains to be seen whether or not town boards, boards of village trustees, common councils and the planning boards which they have appointed have the ability and the courage to withstand pressure from speculative developers. If they have that courage, and if they use the new powers conferred upon them by these new New York statutes, the municipalities of New York will be able to put an effective stop to the worst phases of premature subdivision, for few developers will care to make the investment necessary to equip their subdivisions with the necessary street improvements unless there is a genuine lack of improved parcels upon which to build. If there is such lack, and a reasonable demand for improved parcels, the bona fide developer will make such improvements with the confidence that there is a reasonable prospect of marketing the improved land which he offers for sale. The new laws, if enforced by the planning boards of the state, should therefore prove of great help in preventing unwise and premature subdivision of land into paper parcels.

Water and Sewerage Installations

In addition to the new acts which have been discussed, there was another, Chapter 260 of the Laws of 1938, procured as a result of the activities of the Division of State Planning. It amends a law adopted in 1933, giving to the State Commissioner of Health power to pass upon plans for, and in his discretion to require, the installation of facilities for water and sewerage service. In subdivision plats in towns throughout the state the Act, however, was not self-enforcing. The new amendment provides that no county clerk or register shall file or record or accept for filing or recording any map or plat showing a subdivision of land in any town unless there is endorsed thereon or annexed thereto a certificate of the State Commissioner of Health approving the water supply and sewerage systems proposed or installed for such subdivision and consenting to the filing thereof. This will go far toward making the enforcement of the law automatic. At the present time the law does not apply to any subdivision of property upon which dwellings for less than ten families may be constructed. Should experience prove that this is a loophole or weakness of the law, steps will be taken in subsequent sessions of the Legislature to correct this situation. This new act should go a long way in curtailing ill-advised rural subdivision not adequately designed for, or equipped with, necessary water and sewerage facilities, and be a useful supplement to the new acts previously described.

These new acts are not panaceas, nor are the new planning powers self-enforcing. It is not expected that they will solve the whole problem. They do, however, represent new steps taken by a great state in the law of planning, namely, more drastic limitation in the public interest on the right of the individual to subdivide land as he pleases. They attempt to set up the public interest as paramount to that of the developer and require of him compliance with standards of development already established and paid for by the community. If generally employed by planning boards, they can achieve much, but the success of these new acts will depend very largely upon the courage of the planning boards and their resistance to the pressure of special interests.

Cities Test Stabilized Wage for Seasonal Workers

BELIEVING that stabilized employment and regular pay are as important to public employees as to industrial workers, Two Rivers, Wis., a city of 10,000, has put its outside "seasonal" workers on a 40-hour week with the same monthly salary throughout the year, reports the International City Managers' Association.

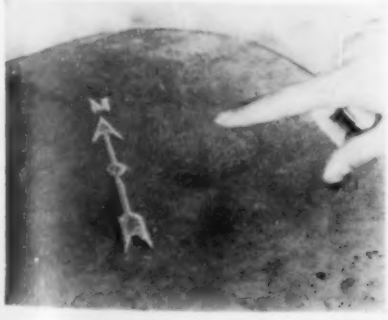
Street sweepers and other Street Department employees, electric line men and the outside men in the Water Department now work a 50-hour week during the summer, when most of the outdoor labor is done, and a 30-hour week during the winter. Unusual in the municipal scene, the year-round wage is under experiment by several industries that employ seasonal workers.

The Street Department of Des Moines, Iowa, recently made a one-year agreement with its 200 workers to pay an annual wage for 240 work-days per year, as against the former average of 200 days per year on an hourly basis. If successful in this department, the plan will be extended to include other municipal employees now on an hourly basis.

Concrete Tables in Arizona Park Give the Picknicker Information About Points of Compass

FOR the picnicker who is confused regarding the points of the compass, a clever arrangement is resorted to on concrete tables placed in the Sabino Canyon Park near Tucson, Ariz. The 4-inch concrete slabs are placed on standards of well-built stone piers, and benches of concrete are on either side of the table. In one corner of the table top is an arrow formed in the cement during construction so as to permanently point north. As the tables are so sturdily built, there is little danger of the arrow's pointing to any other direction than north unless an earthquake should move it, for there would be little chance of an accidental push of a car to remove the top from its solid piers of stone.

THIS ARROW POINTING NORTH IS FORMED IN THE CONCRETE TOP OF THE PICNIC TABLE SHOWN AT THE FAR RIGHT



Organizing Recreation to Attract All Tastes

By PAT DAWSON
Superintendent of Recreation, Janesville, Wis.

IT is evident that, as years go by, many of the increased hours of leisure can be captured for a cooperative plan under which one individual will freely give leadership in music, another in drama, another in the use of tools, to help all in securing more durable satisfaction in living.

Highlights of the present include the rapid development of swimming pool and beach; the increasing popularity of games and activities which can be engaged in by both sexes; night illumination making golf and all ball games playable and watchable at night.

In rural areas, in spite of isolation and undue conservatism, recreational trends are pretty much following those noted in urban communities. Old traditions are breaking down here, and associations are forming to bring the latest in recreation into these rural centers.

The rise of some sort of commission was logical because many problems caused friction when private groups undertook to administer public facilities as the demand for recreation grew. Too often the private group to whom authority has been delegated arrogates to itself certain rights that are inherently those of all citizens.

Administration and Standards

Park boards, playground commissions, and school boards are the principal administering units today, with a pronounced trend toward forming special recreation commissions to coordinate the entire program offered by the city and to administer it effectively. Many standards have been set up for cities of from 25,000 to 100,000 for leadership, equipment, and ground area. The most prominent of these are a year-round recreation system and director; ample facilities (to increase as demand and knowledge of use increases) for activities for little tots, for athletic games, picnics, pageants, storytelling, dramatics, play days, social gatherings in evening, indoor athletics, in-town camps, out-of-town camps, water sports, hiking, back-yard games, and for servicing recreative groups; and park acreage to include a neighborhood playground of at least two acres to serve each area of ¼-mile radius, a park of at least 10 acres for each ½-mile radius, a community of not less than 40 acres for each mile radius, and a total acreage of at least 10 acres for each 1,000 population.

School buildings, because of their central location and their facilities which would lie idle much of the day, are becoming more and more prominent in community recreation. "The lighted schoolhouse" is a slogan of one of our larger Mid-Western cities. Outdoor and indoor swimming pools are coming into their own, largely owing to increased interest in water activities and to WPA assistance. A multitude of activities are arising because of the people's increased interest in all phases of recreation.

Institutes of a day or a few days' duration to train volunteers in recreative skills intensively have sprung up all over the country. An earnest effort is being made to incorporate activities in the program which will appeal to all groups. Private institutions and semi-public organizations have in many cases opened up their facilities for the general good.

Several states have statutes permitting a corporate unit to tax itself up to a stated amount if passed in a referendum vote. Many cities take advantage of this source of revenue.

What 52 Cities Say

Last winter, I sent a questionnaire to cities of 5,000 to 100,000 in the Middle West—from Ohio to Nebraska and from Minnesota to Tennessee—to the person directly in charge of recreation. A summary of the 52 replies is given below:

Only half of the cities reporting use volunteer workers in their programs; 90 per cent of the reporting cities noted a definite increase in adult participation, and 82 per cent noted an increase in interest with children under eighteen years. As 90 per cent of these same systems reported budget decreases from 10 to 70 per cent, this means that these departments are trying to broaden their programs to incorporate the interests of adults.

The most important athletic interests are tennis, swimming, baseball, golf, basketball, horseshoes, ice skating, gymnasium classes, volley-ball, and playground ball.

Adults like concerts, clubs, socials, indoor-game parties, social dancing, cards, picnicking and movies, musical-instrument playing, dramatics (participation), chorus singing, and pageants. Handicraft activities are sewing and needlework, modeling, weaving and rug-making, art and woodworking.

Prominent features of the recreation program for adults along educational lines were evening schools, discussion groups and lectures. For youths these activities included study and discussion groups, debates and lectures.

The great majority of these 52 cities offer very little in the way of educational program, believing this a function of the school.

By far the great majority of these cities felt that the volunteer program was not prominent in the picture of the future. Yet these same cities expected an increased total tax for recreation purposes. Just how this increased program will come about without the aid of volunteer help is hard to see.

Most of these cities expected many more facilities, more evenly distributed, and a great increase in the development of neighborhood centers. This trend is nation-wide. Recreation centers are now being brought to the people. This movement will increase.

Water Service and Repair Trucks in Los Angeles

New Trucks Added to Fleet of Bureau of Water Works and Supply Combine Utility and Good Appearance

By HAROLD J. MARTIN
General Plant Division, Department of Water and Power

SEVERAL trucks of the type described herein have recently been added to the fleet serving the Bureau of Water Works and Supply of the city of Los Angeles. The truck bodies were designed and built by the General Plant Division.

Some idea of the magnitude of the transportation problem involved in the installation and maintenance of water meters and mains can be gained from the following. The

VIEWS OF THE TWO NEW TYPES OF TRUCKS RECENTLY ADDED TO THE SERVICE FLEET OF THE BUREAU OF WATER WORKS AND SUPPLY, LOS ANGELES

city has an area of 450 square miles, being the largest in area of any city in the United States, and nearly half the size of the state of Rhode Island. It is approximately 44 miles long and 25 miles wide. The water distribution system includes over 4,000 miles of pipe and conduit varying in size from 4 inches to 78 inches in diameter with approximately 274,000 active meters and services varying in size from ⅝-inch to 10-inch.

The illustrations show the two general types of trucks used in meter and service installation and in water-main repair work.

Meter and Service Trucks

Photograph 1 illustrates the general external appearance of the type used for meter and service installation. The bodies are constructed of sheet metal on an angle-iron frame, and are practically 100 per cent welded. There are very few rivet heads or other projections to detract from the appearance or make the surface difficult to clean. All external corners are rounded, giving a streamline appearance, even though the body is essentially rectangular and retains the maximum utility value. Rubbing rails along the sides protect the sides and rear-wheel fenders from damage. The insulated water cask, lantern rack, and kerosene tank are mounted above the tool cabinets.

Photograph 2 illustrates the right or curb side of the truck with the doors open. The most frequently used tools, pipe dies, etc., are carried on this side. A chain type pipe vise swings out of the lower rear box and locks in the working position shown. A bracket swings out of the lower front box to support the forward end of the pipe being threaded. Shovels are carried in the lower front boxes. Although these boxes appear to be an integral part of the body, they are actually separate and in case of damage can be removed by loosening a few bolts.

The left or street side of the truck, with bins for pipe fittings and the less frequently used tools, is shown in photograph 3. Boxes above the pipe fitting bins are accessible from the inside of the truck. Bars and long tools are stored in the transverse bin joining the two lower rear boxes.

Photograph 4, the rear view, shows the inside construction. The pipe tunnel on the left runs the entire length of the body and is open at both ends to accommodate long lengths of pipe. Leather straps secure the pipe at both ends of the body. The kerosene tank is visible on the right shelf at the rear end of the lantern rack, with a swing spout for convenience in filling the lanterns as they are removed from the rack. Forward is an upholstered seat, forming the top of the rubber boot box. The entire body may be easily removed from the chassis, and transferred to another.

Truck for Water-Main Repairs

The type of truck used in water-main repair work is shown in photograph 5. The general construction is the same as that of the meter and service truck, except that the body ends in a short rear deck with removable panel sides. A ¾-ton davit crane is provided for use in raising and lowering gate-valves and other heavy loads. When traveling, the crane is held securely by passing the hook through a ring in the roof.

Photograph 6 shows the front of the truck with the backfiller in operation. A friction clutch winch is located just behind the cab, with control levers in the cab. Cable from the winch passes out through a fair lead on the front bumper. In backfilling trenches, the truck driver operates the friction clutch winch, winding in the cable attached to the hand scraper or moldboard with its load of earth. The winch clutch is then released and the hand scraper and cable are pulled out again by the scraper operator.

Canvas curtains are furnished for use in inclement weather. This particular body is mounted on a cab-over-engine chassis, providing the maximum ease of maneuvering and parking. The latest Department trucks of this and similar types are all of the 17,500-pounds gross capacity class, with large motors and 5-speed transmissions for maximum performance, and air brakes for maximum safety.

"Model" Records and Reporting System for Fire Departments

PUBLICATION of a manual describing a model records and reporting system for fire departments, based on surveys in more than 100 cities and designed to aid fire departments in fire prevention in addition to promoting effectiveness in fire fighting, has been announced by Public Administration Service. "Fires are fought with paper and pencil as well as water and chemicals," the manual points out, "with adequate records providing the starting point for all intelligent fire-fighting activity."

Included in the records are check lists of fires classified by causes and by occupancy, with suggestions for spot maps showing the location of previous fires. Comparison of trends in fire losses and causes, and information showing the fire chiefs the effectiveness of the departments, are readily available from the records. The "journal" for each fire company provided in the records shows the activity for each fire-fighting unit, and assignment cards tell what companies and what district chiefs are to respond to an alarm from any point in the city. Thus the records set up a system for the orderly movement of men and equipment to cover every possible fire condition. Other objectives of the records, according to the manual, include suggestions of need for certain fire laws and ordinances; standardization of records with the use of a minimum of forms; improvement of relations between the fire department and the public by systematic reporting; and use as an instrument of control in budgeting for new equipment for the next year.

DeWayne Nolting, a member of the staff of the National Fire Protection Association, who is the author of the records and accompanying manual, installed a complete record and reporting system for the Cincinnati Fire Department, and has assisted many cities in modernizing their records.

"Fixless" Traffic Tags

Portland, Ore., reports success in its new "fixless" traffic tag system, according to the Municipal Finance Officers' Association. A recent two-weeks drive not only reduced traffic charge evasion but resulted in the collection of $2,600 in fines. This was an increase of $1,274 compared with the previous two-weeks period, when three times as many tags had been issued for violations.

THE OLD AND NEW TYPES OF GARBAGE COLLECTION VEHICLES IN ST. LOUIS, MO.
The new White truck illustrated has a 160-inch wheelbase, Goodyear tires, an open cab, specially reinforced rear springs, and an 8-yard body with a St. Paul hydraulic hoist giving a 55-degree dumping angle

One Year of Garbage Grinding

Results of New Method of Disposal at St. Louis, with Historical Background and Costs

By FRANK J. McDEVITT, M.E.
Director of Streets and Sewers, St. Louis, Mo.

GARBAGE collection and disposal has always been a source of annoyance to most municipalities, and St. Louis has been struggling with this problem for the past hundred years. A solution has at last been reached, but before going into details, a resumé of past activities may be of interest.

Historical Sketch

On December 17, 1839, the first ordinance was passed empowering the City Marshal to sell to the lowest and best bidder the contract for refuse collection and disposal, also authorizing the Mayor to appoint two inspectors at an annual stipend of $500 each. Since that time 55 ordinances have been enacted providing for various changes.

In 1843 the method of contract awards was changed from public bidding to receiving sealed bids. Later on, because of difficulty with contractors, it became necessary for the city to take over collection and disposal. This same thing has occurred on three occasions since the first ordinance was passed.

Apparently there was also disagreement among city authorities as to which department should have supervision. At various times responsibility was lodged with the Comptroller, the Board of Health, the Public Utilities Department, and, finally, the Department of Streets and Sewers, where it now rests.

In 1882 an ordinance was passed permitting the contractor to sell garbage to hog feeders, the benefit from these sales accruing to the former. Collections were made and contracts were let on the basis of districts. As a result of city expansion, these districts increased in number, and over a period of eighteen years the annual city cost increased from $15,000 to $25,000. Up to this time it had been the practice to dump the garbage into the Mississippi River.

In 1889 the Rivers and Harbors Act was passed by Congress forbidding the dumping of refuse in navigable streams, but specifically exempting liquids emanating from sewers. Dumping in the river was stopped and at an increased cost to the city contractors, who were obliged to use other means of disposal.

In 1898 the city made a new ten-year contract for the collection of garbage at a cost of $80,000 the first year and each of the following nine years at $127,400. In addition there were a number of inspectors, together with laborers to dump garbage at the city dock. A separate contract on disposal was entered into at a cost of $130,000 per year, indicating at the turn of the century an annual cost of $257,400 plus inspectors and laborers.

In 1904 the city bought out the last private collection contractor for $51,092 and rented the stables and wagon shed for $21,671.08 per year with an option to purchase at $93,908.

In 1916 a contract for disposal was let at 87 cents per ton, and at the same time the city began licensing private collectors on payment of $20 per year. The following year the city spent $17,000 on a reduction plant at the foot of North Market Street. This plant was only partially constructed, and after some experiments it was discontinued.

During the ensuing seven years various contracts were entered into for disposal, costing the city from 87 cents to $2.10 per ton. The garbage was dumped at the city dock at the foot of Chouteau Avenue on board the contractors' barge and hauled down stream to hog farms.

Experiments were conducted in 1924 with a small incinerator having a capacity of 80 tons per day, and costing $69,812. After several months' operation the plant was abandoned, largely because of odors and poor combustion. About the same time $50,000 was also expended on several tractors and a number of side-dump steel trailers. These

were to be used in connection with the incinerator, but when this failed they could not be used at the dock where rear dumps were required, so they were stored and allowed to deteriorate. Ten years later the trailers were traded in on some trucks and about $5,000 salvage realized.

When the present administration took charge, in the spring of 1933, the city was operating under a five-year contract, which expired February 19, 1935, to deliver garbage on board barges at the foot of Chouteau Avenue at a cost to the city of 34.5 cents per ton. The garbage was barged to a hog farm on the east bank of the Mississippi River near the town of Monsanto. The residents of South St. Louis immediately opposite were frequently annoyed by obnoxious odors emanating from the hog farm, and secured an order from the Circuit Court restraining the city from disposing of garbage to this hog farm. Immediate steps were taken to find other ways and means of disposal. Owing to similar trouble from hog farms in years past, it was not deemed advisable to secure another location.

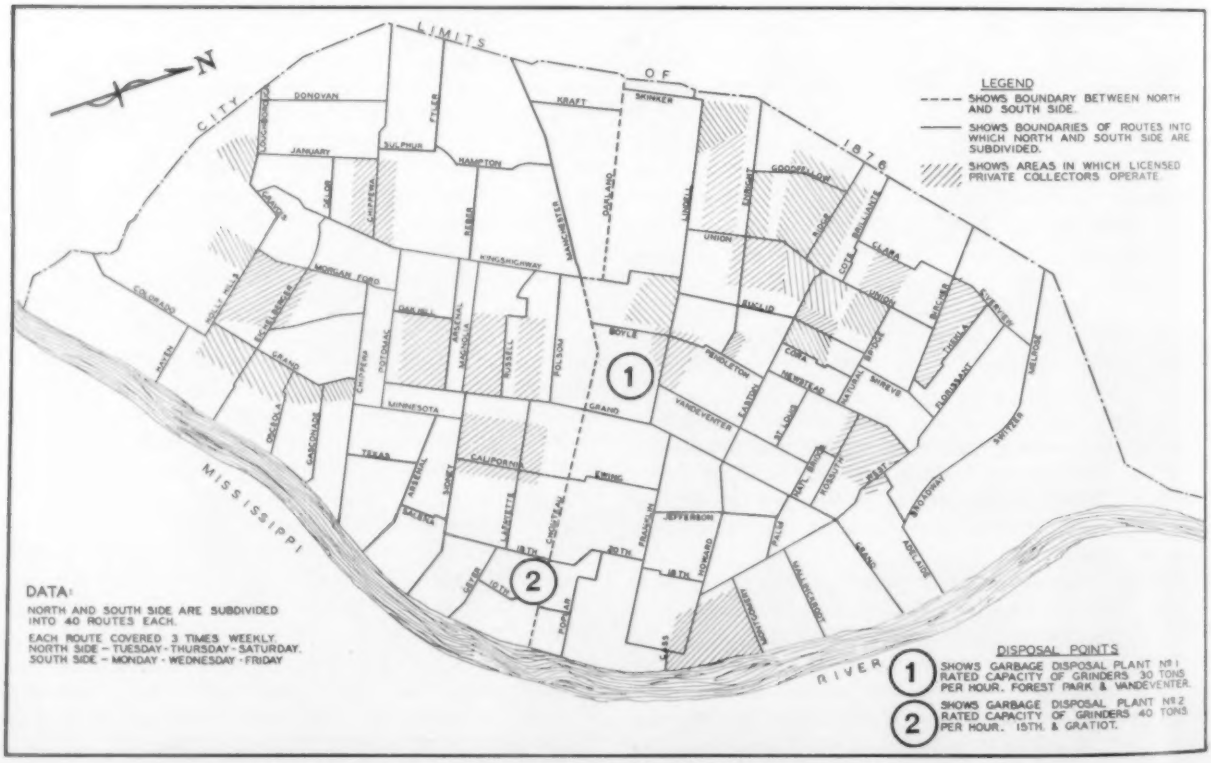
Further Incinerator Investigations

Notwithstanding previous troubles with incineration, this method was carefully investigated again. Many improvements had been made in the art of incineration. By using forced draft step cone grates and air preheaters, high furnace temperatures can be maintained which will effectively consume all obnoxious vapors. High maintenance of refractories due to intermittent operation and secondary combustion can be eliminated through the use of water-cooled furnaces, and either hot water or low-pressure steam made available for economies elsewhere. Ash removal has been made continuous and automatic through use of a modified gas producer bottom, and ploughs. A modern incinerator, as described, with adequate dehydrating rolls and of proper capacity, would cost about $600,000 installed ready for operation.

Operating costs, including labor, water, light, heat, power and maintenance, but excluding fixed charges, would cost about 52 cents per ton, according to our investigations. Furthermore, it would require at least twelve months to secure funds and provide for design and construction. On several occasions in the past, unsuccessful attempts were made to secure passage of an appropriating ordinance for incinerators, owing largely to numerous objections from citizens attending public hearings on the subject.

Other Methods Considered

Several other methods of disposal were investigated, such as conversion to animal feed, and conversion to fertilizer. Depending upon the design and type of equipment, also the time of conversion cycle, the plants of adequate capacity cost from $500,000 to $3,000,000. Operating costs, including labor, light, heat, power, and maintenance, but omitting fixed charges, vary from $2 to $3 per ton. Of course, there is the possibility of realizing a profit on sales of food or fertilizer. On a large tonnage this is questionable. There is the likelihood of spoilage due to high moisture content. The chance that ground glass may affect animals adversely is always present, and it is difficult to remove glass entirely from raw garbage. A number of small plants have been installed using high-class garbage from hotels, restaurants, and institutions, and a fair quality of animal food has been produced. Operations on a large scale are vastly difficult, since the average


LIMITS OF CITY
N
LEGEND
SHOWS BOUNDARY BETWEEN NORTH AND SOUTH SIDE.
SHOWS BOUNDARIES OF ROUTES INTO WHICH NORTH AND SOUTH SIDE ARE SUBDIVIDED.
SHOWS AREAS IN WHICH LICENSED PRIVATE COLLECTORS OPERATE.
MISSISSIPPI RIVER
DATA:
NORTH AND SOUTH SIDE ARE SUBDIVIDED INTO 40 ROUTES EACH.
EACH ROUTE COVERED 3 TIMES WEEKLY.
NORTH SIDE – TUESDAY - THURSDAY - SATURDAY.
SOUTH SIDE – MONDAY - WEDNESDAY - FRIDAY
DISPOSAL POINTS
1 SHOWS GARBAGE DISPOSAL PLANT No. 1 RATED CAPACITY OF GRINDERS 30 TONS PER HOUR. FOREST PARK & VANDEVENTER.
2 SHOWS GARBAGE DISPOSAL PLANT No. 2 RATED CAPACITY OF GRINDERS 40 TONS PER HOUR. 15TH. & GRATIOT.

GARBAGE COLLECTION ROUTES AND LOCATION OF GARBAGE-GRINDING PLANTS, ST. LOUIS
The shaded portions are still served by licensed private collectors

run of raw city garbage is much lower in food value, and contains a large quantity of tin cans and glass bottles. These methods of disposal would cause the city to enter into competition with private business, which, in all likelihood, would meet with disapproval on the part of taxpayers. When questioned, the head of one large concern stated that if there were any possibilities in the conversion of garbage into fertilizer or animal feed, they would have taken it up long ago.

Low Water Creates Health Hazard

While this investigation was being made, a very low stage of the river occurred during the winter of 1934. As a result, the barges could not get near the dock, and many hundreds of tons of garbage had to be stored on the levee until conditions changed. Had this happened during the warm summer weather, there would likely have been a serious effect on public health. This was another good reason for changing the old method of disposal.

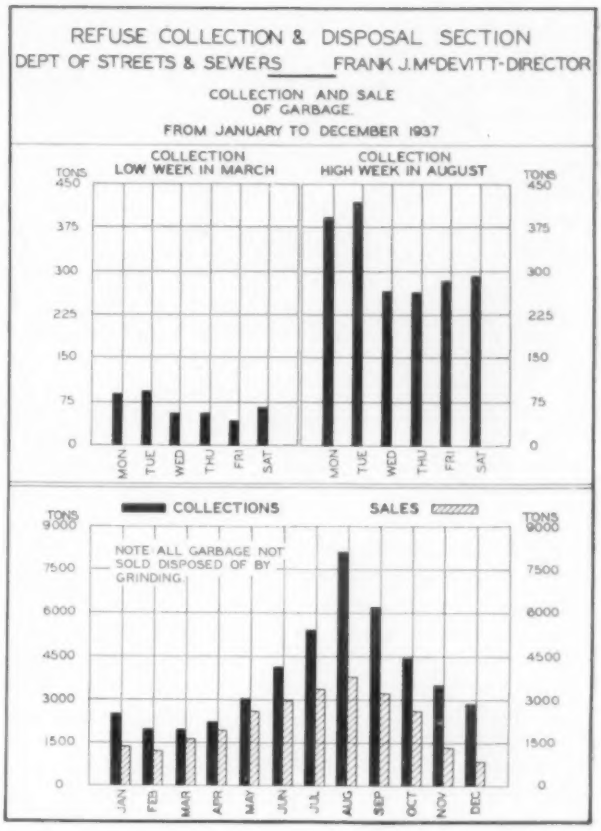
Experimental Grinding

During the spring and summer of 1934 an experiment was made of a new method of disposal. A hammermill, consisting of a steel casing surrounding a shaft on which were mounted pivoted steel hammers rotating at high speed, was purchased and installed. Garbage was hand-fed, ground to a pulp, and the residue discharged into the sewers. Repeated tests produced satisfactory results. There were no odors, and no deposits in the sewers. St. Louis garbage averages 85 per cent water, and about 1,000 gallons of water per ton of garbage was used in the grinding process. The discharge resembled a thick soup with all particles passing a ⅜-inch screen. War Department engineers and various city officials made an inspection, and after sampling sewage four city blocks from the plant no sign of garbage was visible. At the outlet of the sewer two miles away no garbage was discernible. The Bureau of Fisheries made some tests on the B.O.D. value of the garbage and the dissolved oxygen content of river water above and below the outlet. The latter showed an oxygen content of four parts per million, which was considered "from adverse to critical." Below three parts per million is considered dangerous to aquatic life. As a matter of fact, the pollution from garbage is negligible, and most of the oxygen depletion is occasioned by human and commercial waste in the sewage.

Comparisons of Methods

During the past few years many sewage-treatment plants have been installed, and there is a great deal of talk about stream pollution. After all, the Mississippi River is of more importance commercially, and the fish are of the scavenger type, largely carp, catfish and gars. These fish are usually caught around the sewer outlets, where they evidently thrive on sewage.

A sewage-treatment plant for the city of St. Louis would be very costly. An 18-mile intercepting sewer along the harbor would be required, and this, with the disposal plant, would likely cost in the neighborhood of $75,000,000. Even at low stages the Mississippi River has a flow of 37 million gallons per minute, and this will be augmented in another year by surplus water from the Fort Peck



Reservoir now being constructed. St. Louis would bitterly oppose the construction of a dam to the immediate south which would create a stagnant pool in one of the finest inland harbors extant. Because of the surplus water already mentioned, a dam should not be necessary to aid in maintaining the desired 9-foot navigation channel at low stages.

First Grinder Installed

The city received written approval from the War Department, so another grinder was purchased, and both machines were equipped with special pan conveyors and receiving hoppers. The plant was designed and constructed with departmental forces at a cost of $40,000, exclusive of land, engineering, overhead, and contractors' profit. While the normal rated capacity was 30 tons per hour, by making certain changes in design the capacity was nearly doubled. This plant started functioning when the hog-farm contract expired on February 19, 1935, and has continued in operation ever since. Only a few breakdowns have taken place, resulting in negligible maintenance costs. Power consumption averages 3 to 4 kilowatts per ton. Water consumption at the maximum rating averages 1,000 gallons per ton. This is excessive because the intercepting sewer leading from the grinder is too small for the increased load, and extra water is required for proper cleansing.

During the summer of 1936 there was an unusually long drouth, but no trouble was experienced with garbage disposal. The 400 gpm mixture leaving the grinder has 3 to 5 per cent of solids. After traveling a short distance in a 2 x 3-foot egg-shaped brick sewer, there is a connection with an 8.5-foot diameter sewer which has a normal dry

weather flow of 8,000 gpm. Several blocks away this merges with a 15 x 20-foot trunk line sewer with a dry-weather flow of 50,000 gpm. The river outlet is reached two miles away, where dilution takes place through mixing with 37,000,000 gpm, which is the average low-stage flow.

Second Grinder Put into Service

In the event of a serious breakdown to the grinders, garbage cannot be stored awaiting repairs, so it is advisable to have adequate reserve capacity. Also, two or more plants properly located lessen the collection haul. For this reason a second grinding plant was installed in 1936, having a capacity of 40 tons per hour. The discharge is through the crown of the 15 x 20-foot Mill Creek sewer. Because of the heavy dry-weather flow, very little water is required in the grinding process. This plant is equipped with a special design of magnetic separator for removing tin cans from the garbage. There is also an oil-operated plunger-type lift for transferring garbage from city trucks to farmers' trucks. The land and special features increased the cost of the Number 2 plant about $10,000.

Taking into account the low plant cost, with large reserve capacity, this type of garbage disposal is undoubtedly the cheapest in first cost. Operating figures, including fixed charges, are also less. There are many locations similar to St. Louis where grinding can be used to advantage. Before purchasing equipment, which is a comparatively easy matter, a careful survey should be made and a suitable design prepared by some qualified engineer.

Collection Methods

During the past two years St. Louis has substituted trucks with special sanitary-type dump-bodies, in place of mule teams. In 1936 an ordinance was passed increasing the fee for private collectors from $20 to $200 per year, and providing for the retail sale of garbage at the grinding plants. A sliding scale of prices was established considerably under the corn equivalent value, and during 1937 over 25,000 tons were sold at $1 each to farmers. Because of high corn prices, many traveled a distance of 100 miles. About 58 per cent of the garbage collected with city forces was sold, and the total of sales and license fees amounted to $36,906.30. Considering that an equivalent sum was formerly paid out to some contractor to barge the garbage downstream to his hog farm, there is in reality a saving of over $70,000 per year.

City garbage collections have dropped from a peak of 75,000 tons in 1931 to 46,250 tons in 1937. This reduction may be largely attributed to high corn prices, making garbage more desirable for food, and the consequent increased activities of private collectors. These collectors can purchase cheaper than collect, but they prefer collection in order to get a higher quality. In other words, they do not cover the routes assigned, so the poor-quality left-over must be collected by city forces, thereby causing a duplication of effort and increased unit costs. Private collectors also cause annoyance by spilling garbage in alleys, damaging containers, and making undue noise. Because of numerous complaints, private collections were stopped January 1, 1938. This will not work a hardship, since garbage can be purchased at the grinders. As a result of this change, there should be a substantial increase in tonnage collected by city forces and an improvement in quality. All this can be accomplished at no increase in annual cost, but with a lowering of unit cost.

Collection and Disposal Costs

In order to provide the necessary collection service, the city maintains a fleet of 45 trucks; 30 of 8-ton capacity, and 15 of 5-ton capacity. The larger units have a chauffeur at $130, a collector at $115 per month, and a laborer at $3.50 per day. The smaller units omit the laborer. Refuse other than garbage is collected privately at a cost to the average home-owner of $5 per year.

After deducting $35,502.39, covering the cost of reconstructing a garage and the installation of a heating system, also deducting $36,902.30 received from license fees and the sale of garbage, the cost of garbage collection and disposal for the year 1937 was $191,781.15, or $4.15 per ton.

Benches Come to Baltimore

An Editorial in The Evening Sun, Baltimore, Md., May 13, 1938

FOR years and years, *The Evening Sun* has stood four-square for park benches in Mount Vernon Place. We have appealed to the Park Board in the name of weary age, which yearns for a place to sit in the sun and dream, and in the name of youth, which would keep off the grass (maybe) if it had benches. We have appealed to the Park Board in the name of little children, who play there, and of their nurses who tend them. We have appealed on behalf of musicians, who may wish to sit and compose, or just sit, and poets who may wish to do likewise. We have appealed to the Park Board in the name of hospitality, of democracy and of fair play.

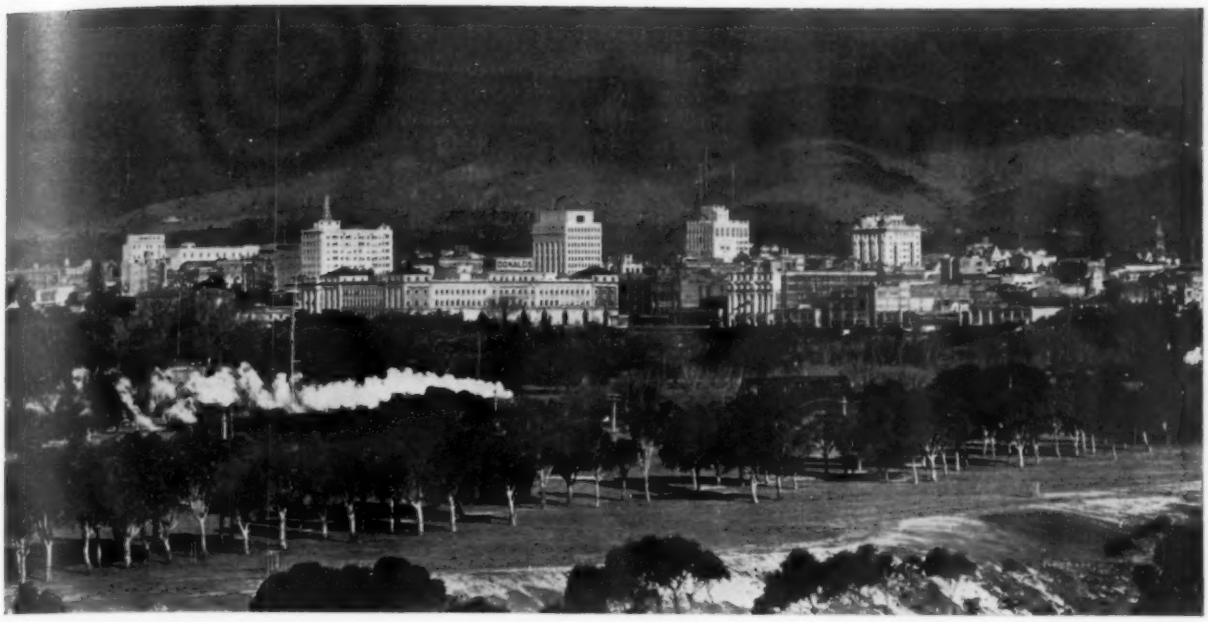
Vain appeals! To all of them the Park Board turned a deaf ear. It said that benches might be very well for London's Green Park and for the Luxembourg Garden in Paris. But those foreign ideas simply wouldn't do in Mount Vernon Place. And so it went, until yesterday.

Yesterday there were several benches—eight, to be exact. They had been loaned by the Park Board, for the Flower Mart, and after the mart closed the Park Board—probably misled by pixies—just decided to leave the benches there and see what happened. We can report that this is what happened: people sat on them all day long and liked it.

Of course, eight benches aren't many. A hundred would be more like it. Still, eight will do for a start. Considering the long history of the argument for benches, the sight of even this small number is something startling. The beholder rubs his eyes and says, with the poet, "Was it a vision, or a waking dream?" Then he sits down and knows that it is true.

National Municipal Review Inaugurates Planning Department

A new department is inaugurated in the May issue of the *National Municipal Review*. Progress and events in this increasingly important field will be reviewed each month under the direction of Alfred Bettman, prominent attorney and Chairman of the City Planning Commission of Cincinnati, and Walter H. Blucher, Executive Director of the American Society of Planning Officials.



The Plan and Planner of Adelaide

By THOMAS ADAMS

COLONEL WILLIAM LIGHT, who made the plan of Adelaide, Australia, in 1837, resembled Major L'Enfant, who planned Washington, the Capital of the United States, in 1791, in that he was a soldier and an artist, as well as a surveyor. In 1836, he was appointed Surveyor-General of South Australia by the South Australian Colonization Commission. The following are interesting facts regarding the instructions given to him in a letter dated March 9, 1836, signed by the Secretary, Rowland Hill. The letter stated:

"Having completed the surveys here indicated, and having carefully recorded all important circumstances so that the different sites favorable for the erection of towns may be brought into exact comparison, you will proceed to determine which of the several sites shall be selected as that of the first town. . . . Believing that such a result will be most effectively secured by placing the whole responsibility of the decision in your hands, the Commissioners purposely avoid all minute instructions for your guidance."

After determining the site of the first town, he was to proceed to lay it out in accordance with

"regulations for the preliminary sales of colonial land in the country."

He was to make

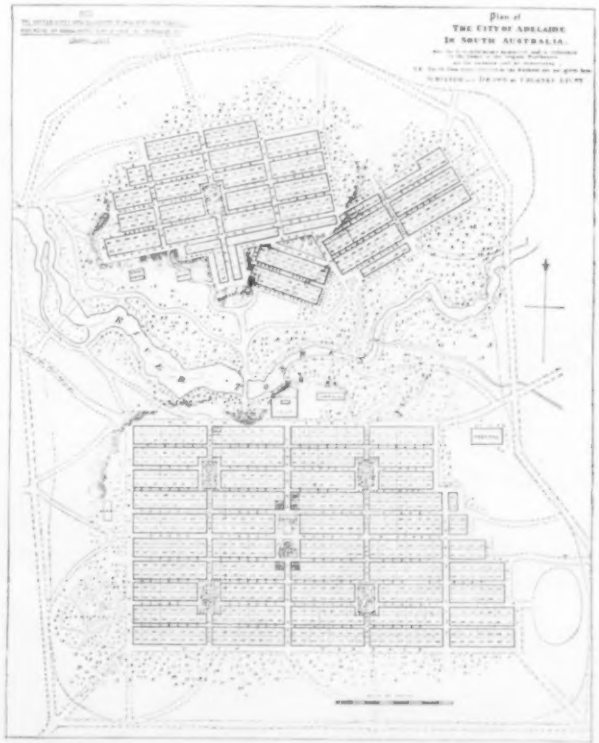
"the streets of ample width and arrange them with reference to convenience of the inhabitants and the beauty and salubrity of the town—and you will make the necessary reserves for squares, public walks and quays."

It was following these considerations that he was then to

"proceed to survey, lay out and map the surrounding district, and divide the rural land into sections 134 acres each, with reserved roads, and after selection into 80-acre sections."

He was to avail himself of natural boundaries and in all surveys reserve all land on the coast within not less than 100 feet of highwater mark as a public road, and at least 66 feet wide along each side of a navigable river, and around every lake or other sheet of water, as a road.

William Light arrived in South Australia on August 20, 1836. He made up his mind on December 29, 1836, to select the site on which the city now stands. After two



COLONEL LIGHT'S PLAN OF ADELAIDE AND BELT OF PARKLANDS, 1836-7

weeks devoted to looking over the ground, on January 11, 1837, the survey and staking off began. It was completed in two months.

Characteristics of the Adelaide Plan

What are the characteristics of this plan which invite attention for the purposes of study and example? As a pattern of streets and plots, the plan of the two sections of the town has no qualities of originality or distinction. It is a good example of the conventional checkerboard system. The streets were 66 to 131 feet wide—a width mostly determined by chain lengths. It was provided with five large and well-placed squares in South Adelaide and one in North Adelaide. This was the type of plan in vogue in all new countries in the 17th and 18th centuries. His placing of the Government House in the axis of King William Street indicates that he was not indifferent to architectural values. The plan, however, was not adhered to in this respect, and King William Street has been continued straight through to North Adelaide. His curved roads through the parks were intelligently laid out in conformity with the topography, and he wisely showed the road crossings over the River Torrens at right angles to the river, but in these particulars the plan has been violated.

The really good qualities of the plan lie in other directions. They may be briefly described as a regard for topography in the highest sense, and for the value of separation of the town into units or cells surrounded by wide belts of land. The belts of land around the two portions, forming a figure 8, were apparently a continuation of the idea which started with the preservation of the valley. The result was the separation of the two towns with the ring of open land surrounding each, and both together. It is this unique feature that has a lesson for us in modern times. The idea might inspire a somewhat new method of dealing with the green belt. Instead of making this a belt of comparatively narrow strips and blobs, it should be widened out sufficiently to provide sites for compact new sections of town. There would be no difficulty in giving effect to the idea in smaller towns and in building new towns.

Yet however well a town may be planned at the beginning, it may become lacking in efficiency and pleasing appearance in some of its modern aspects, because of failure of successive generations of performers to maintain the standards of its first planners. A new act started in Adelaide when the railways came; another when the wooden building gave way to the stone building; another when the acre plots were subdivided and narrow interior streets were opened through them; and more recently a greater change of act of planning was necessary with the revolution created by the motor-car.

What Adelaide is today is the result of these successive acts of planning at different stages; what the succeeding planners, municipal rulers and land brokers superimposed on the ground-work laid down with such ingenuity and foresight by William Light. We find on paper* reasons for much disappointment. The best tribute to William Light is not a statue, nor a meeting to commemorate his name, but the carrying on of the work he began and did so well—the carrying on of that work according to standards that will bring such honor to the names of those who are now planning and developing Adelaide as we now bring, and the citizens of Adelaide will always bring, to the name of William Light.

(Condensed from a paper delivered at the Royal Empire Society on May 31 published in *The Builder* for July 9, 1937, London, England.)

* Thomas Adams has not visited Adelaide.

NORTH TERRACE, ADELAIDE

Machine Accounting Brings Quick New Service to Taxpayer

A Tax-Collecting System with Up-to-Date Information Available

By RALPH W. LATHAM
Receiver of Taxes, Township of North Hempstead, N. Y.

NASSAU COUNTY, N. Y., one of the largest counties in the East to mechanize its tax-collecting procedure, contains three towns and two cities. The towns, or townships, are Hempstead, North Hempstead and Oyster Bay; the cities are Long Beach and Glen Cove. Each township and city has its own tax-collecting system; those of Hempstead (see this magazine for July, 1936, page 85), and now North Hempstead, being performed by use of addressing and billing machines, with Oyster Bay soon to follow. The moneys collected are turned over to the township supervisor, who distributes them to the fire, water, sewer, lighting and other special districts and departments. The villages incorporated within the town, of which there are 30 in North Hempstead, from the village of Saddle Rock with a population of 40, to Mineola with 12,000, assess and tax for local improvements. North Hempstead property is assessed at $195,000,000, and taxes total $2,248,578 for schools and $4,183,183 for county, town and special district purposes.

The township of North Hempstead has installed a Burroughs accounting machine system which does more than save drudgery and time, important as those savings are. In producing incomparably more accurate tax data in one-third the hand-work time, the new system provides detailed information to the taxpayer, who wants to know whether or not his current taxes have been paid and whether he owes back taxes. This information is now his at once for the asking.

With the old system (only six months ago, indeed!), when a taxpayer telephoned to find out whether he had paid prior taxes, we had to take down his telephone number and in the course of time call him back. Now we say: "Hold the wire."

A property owner frequently knows that he has paid his current taxes, but has overlooked the dangerous fact that he missed paying last year's. A year later the tax roll would go to the county for final action on delinquent accounts, and all at once the owner would find that there was a tax lien against him, with additional costs, plus the tax. This decidedly unpleasant and unneighborly situation has been eliminated by the present system which permits us to tell the taxpayer, when he pays his current taxes, of the back debt against him.

The job of the receiver of taxes of the township of North Hempstead is to make out and mail bills to 38,000 taxpayers on 100,000 parcels, receive and receipt the payments, and account for the moneys to the treasurer of Nassau County. The tax roll comes to this office fully extended as to the tax data, so that the bills can be made out immediately from it. The present convenient stub form of bill is here shown in contrast to the old form, which was

BURROUGHS BILLERS IN NORTH HEMPSTEAD, N. Y.

8 x 14 inches and was written by hand, with many practical opportunities for errors. One of these errors, like the one shown on the exhibit, would take a day to run down and correct.

The tax data are printed on the new bill by Burroughs tax-billing and accounting machines. The bill is put into the machine, with an individual ledger card back of it, and a journal sheet giving a record of the tax-billing back of the card. This record of tax-billing (1) shows what was posted on the cards and bills and (2) provides a record and agreement of the tax roll. It is of particular value in case of question whether or not a certain bill was sent out. This sheet gives the arrears, volume number, item number, valuation tax per item, number of lots, total tax and the computations of the halves. The machines compute the consolidation, total tax and halves while these three records are being prepared in one writing. The result is a book consolidating the 100,000 items of the tax roll into the 38,000 property-owner records. It is a by-product of the billing operation, requiring no extra effort to produce, and is a valuable part of our tax records.

Contrast of the old billing procedure with the new again emphasizes our service in keeping the taxpayer informed on arrears, for the individual property-owner cards showing the condition of previous taxes are available as current billing is done.

Name and address and property description are printed on the bill and all tax notices by the Addressograph.

Both general-tax and school-tax bills are rendered semi-annually. The general tax must be paid between January 1 and February 10, and July 1 - August 10; the school tax April 1 - May 10 and October 1 - November 10. This amounts to a quarterly rendering of tax bills. Payment is by personal call or mail.

PROMPT NEWS FOR THE NORTH HEMPSTEAD TAXPAYER

The old hand-written bill that was used to 1937 at the upper left; the ledger-card history of all taxes due, at lower right; and the separate bills now used for town and school taxes. This system gets clean, accurate bills out in one-third the former time and handles three times as many receipts per day

Handling the Taxpayer

When the taxpayer calls, his ledger card is first consulted for arrears. If he owes any, the fact is brought to his attention at once. On payment of the tax, his bill is receipted by a special Burroughs receipting machine which prints the town identification, the cashier's symbol, a progressive receipt number, the date of payment and the amount paid and kind of payment. This information is repeated on the office stub, and on a locked-in detail audit tape in the machine. The stub is detached and the official receipt returned to the taxpayer. Where more than one bill is being presented by the taxpayer for payment, this machine provides a total of the amount to pay. This certification shows the complete history of each day's transaction and protects the taxpayer, the cashier and the town against erroneous entries and possible defalcations.

The machines are unlocked by the receiver of taxes periodically during the day, and the cashier's cash is balanced against the machine totals. The audit tape is then filed away for future reference in case of necessity.

The cashier's stubs are being posted continuously during the day to the taxpayers' cards, and provide a further check on the accuracy of the cashier's totals.

The ledger card is by far our most important record. It and the record of tax billing bid fair to make the time-honored assessment roll obsolete. This card gives a complete record of the property and all the taxes due on it. We have brought all these individual records to date, and now have available literally at a moment's notice a complete history of each taxpayer's debt. By promptly notifying him of his standing, we not only save many heartburnings, as already explained, but we save the town some money by collecting more taxes ourselves in place of the county's doing it for us and keeping the penalties.

Ten times as much money is received by mail as by personal payments. First, the mail is sorted by tax-roll volumes, of which there are 14 for school districts, and 14 for general town tax. There are 28 volumes in all.

The corresponding ledger cards are taken from the files preparatory to the receipting of the tax receipts and stubs.

All these payments are receipted with the same information as in the case of personal payments, explained above; however, when all the payments within a certain volume have been receipted, the receipting machine prints a mail total for the individual volume. It also accumulates under lock and key a grand total for all mail, which is released at the end of the day by the head cashier and is checked against the deposit for mail items made to the bank.

Cards are posted and proven in totals by volumes against cashier's detail tape and totals, from the receipted stubs.

By the use of these receipting machines, we can handle three times as many bills as formerly. Six hundred receipts made out by hand, with all the billing in-

ADDRESSING THE TAX BILLS

At right is Mr. Latham, the author, feeding bill blanks, and at left the operator about to place in position the metal typing units which print name and property description on the bills which are shown completed at lower left. The Addressograph is equipped with a selector which assembles from the file of plates all those which are tabbed as delinquent. This method has materially decreased the volume of arrears

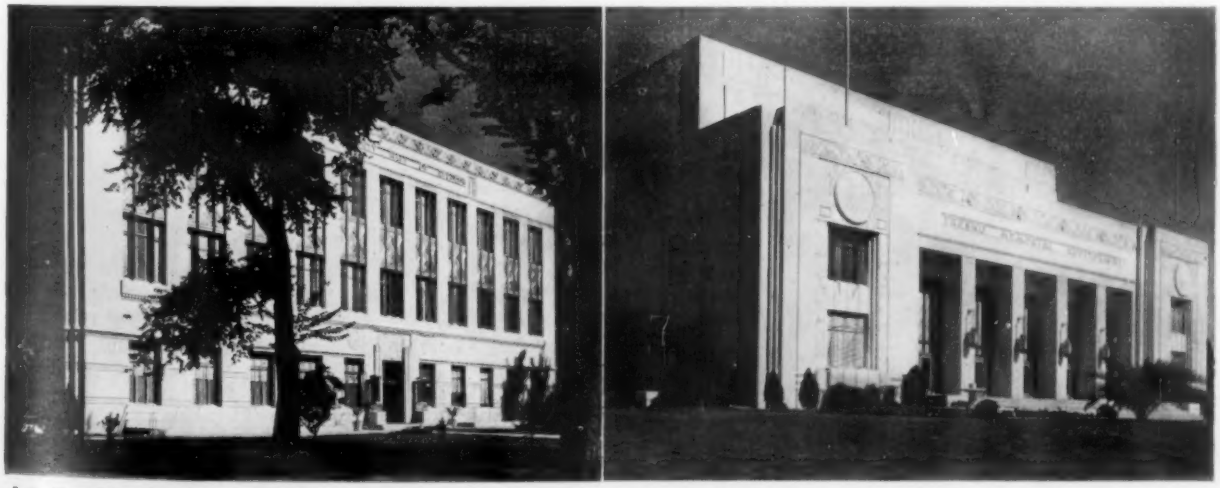
formation copied on each receipt, was a good day's work for six persons, where upwards of 2,000 are handled now by three receipting machines. The result is quick service for the taxpayer.

In making out the old hand-written bills, every effort was made to note the arrears on them; but the amount of research required (taking at least 15 minutes) to dig out these arrears was such as to cause many omissions of them. Clerical errors have now been reduced to a minimum. The present bill form carries in the upper left-hand corner the notation of arrears (former year's) in black, and the county arrears (earlier years) in red.

The stubs are then filed in a cabinet by volume and dates in numerical order of lot and block. Filing by the number which was printed on the stub at the same time that the name, address and property description were printed on the stub, cuts down this filing phase of the work by 80 per cent. These stubs are duplicate receipts, and they are sent at the proper time (after one year and nine months) to the county treasurer, along with the assessment rolls.

Credit is due William H. Otto, our Chief Accountant, for the smooth establishment and operation of this system, and I am in agreement with his prediction that when our books are turned over to the county this year, we shall have collected the highest percentage of taxes in the history of the township. A gain has already been shown in current collections, accompanied by a steady and material reduction in arrears.

New Public Buildings in Fresno, California



Left—New Hall of Records in Fresno, constructed through the aid of an allotment of $115,000 from the PWA. Various divisions of the offices which could not be housed in the old building have already moved into their new quarters. Old records, too, have found a permanent resting place in the new fireproof building. Right—The Memorial Auditorium constructed in Fresno with PWA funds

Working Plans of "The City Rest House"

By BENJAMIN W. LEVITAN, R.A.
Architect, New York City

Consultant to the Women's City Club of New York on its report on comfort stations; for the City of New York—Architect, Elevator Storehouse, Welfare Island; House of Detention for Women, Manhattan; Comfort Stations, Manhattan

SENATOR ROYAL S. COPELAND'S stimulating proposal of a practical means of municipal comfort stations on the basis of need rather than as occasional monuments, as heretofore, has roused me as a specialist in this type of work, to contribute the second requisite—actual plans demonstrating the practicability of Dr. Copeland's idea. (See THE AMERICAN CITY, February, 1938, page 46.)

"The building I visualize," he writes, "is a dual building. Except for the entrance doors labeled respectively MEN and WOMEN, there is no connection whatever between the two wings, which are the men's and women's toilets, and the central building, which is a restaurant serving beverages, sandwiches and other simple refreshments."

To these broad, clear specifications I present a plan which may be varied to suit the geography and population density of any community. The unit can be located in a city square or park, where maximum convenience and attendance can be expected, and where such a location is most valuable as a concession.

The plan is flexible. The toilet wings can be on grade as shown, or the entire toilet section can be below grade, with the upper portion used as a pergola or as a lunch room, with center stairs giving access to the toilets below.

"Simple, Tasteful, Inexpensive"

To get away from the monumental or imposing edifice, a simplified and domestic front is provided which underemphasizes the primary use of the building. With some planting and flower-boxes, this unit can be made attractive and without the aspect of a public building.

The building is modern fireproof and weatherproof (glazed tile walls faced with brick or terra cotta), with interior of terra cotta or tile. The tile floor is superior to terrazzo, as it permits easy replacement of worn sections. We recommend hung water-closets, which facilitate cleaning. A special feature is the air-conditioning and cooling of the toilet units, a feature which can be applied also to the restaurant.

Half of the service unit consists of pay toilets reached through turnstiles (marked T on the plan view). These are large units comprising a private water-closet and washbasin, soap, towels and mirror. The upper, end units are showers, which will increase revenue. The number of both pay and free toilets can be increased to suit the location and business by extending the wings, which can of course be expanded in either direction. None of the toilets have seat covers, though paper covers are available. In both the men's and the women's toilets there is a rest couch, which is both a convenience and a first-aid feature in case of emergency.

I have an improvement consisting of a pipe tunnel which I apply to this type of work. This tunnel controls all valves, flushometers, plumbing connections, and air-conditioning ducts, with access door from the utility room. The construction of the tunnel provides in each toilet a shelf on which may be placed handbags or coats, with perfect protection without the need for coat hooks.

The restaurant has a center circular counter and bar, with steam tables and coffee urns. The ranges and refrigerators are shown on the rear wall. In addition to the 30 stools on 18-inch centers at the counter, the plan shows 8 booths to seat 32 customers.

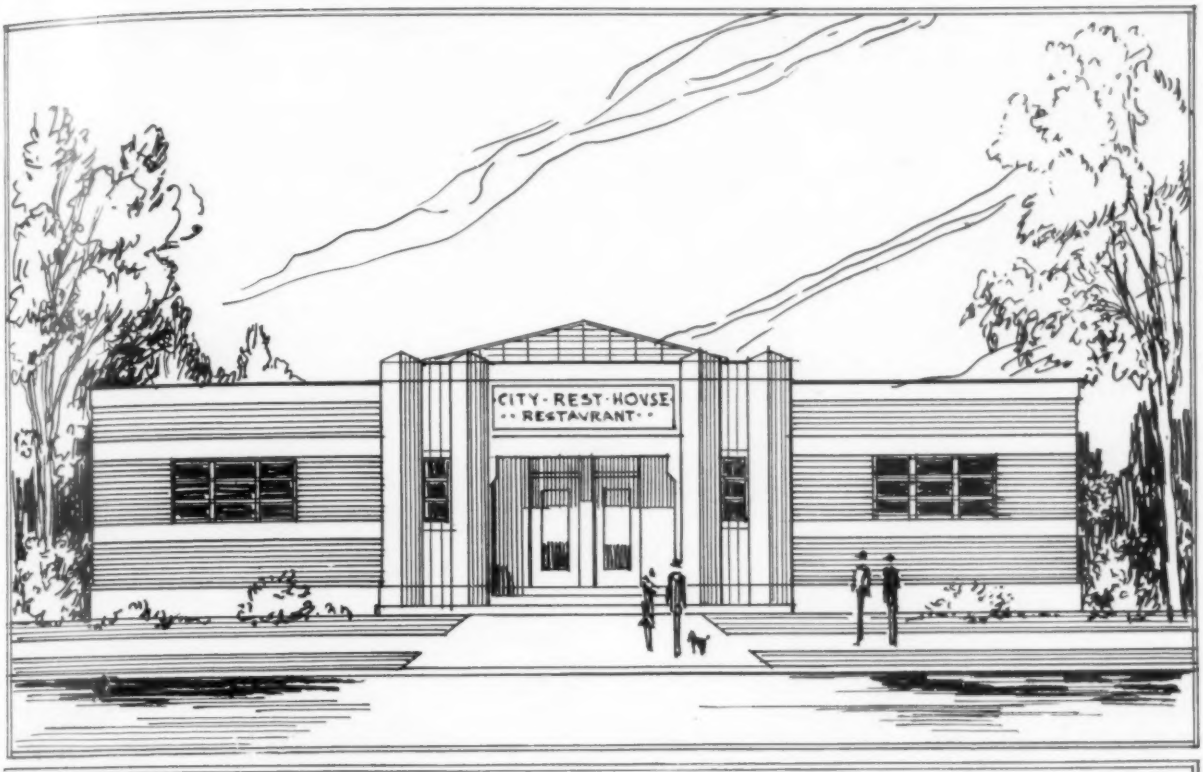
The basement of the restaurant contains, in addition to the heating and hot-water boiler, the service kitchen and bakery, storeroom, etc., reached by a trap-door inside the "work space," or by outside stairs. A cellar is not needed under the toilets, for all plumbing is accessible from the pipe tunnel. All lighting in the building is indirect.

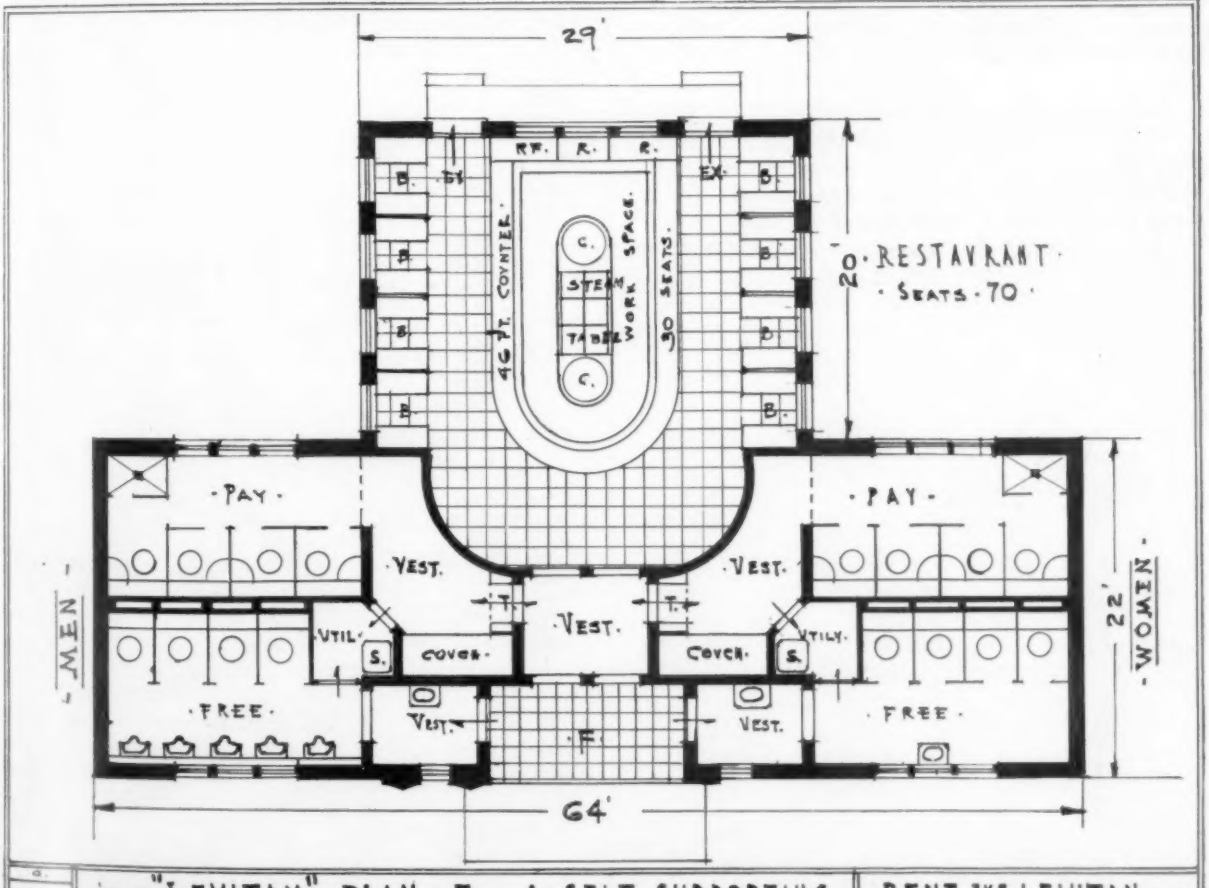
A Concessionaire Services the Rest House

At present it is practically impossible to build and maintain comfort stations, because of the cost. In New York City, for instance, attendants are paid $1,600 to $2,200 per year, so that the expense for this service alone amounts to $8,000 per year.

The value to a city in connecting a concession with such a service unit is that it makes available, permanently at all hours, both male and female help to control and service the men's and women's toilets. The concessionaire, having the restaurant and pay toilets, can estimate his probable volume of business and bid accordingly. The building can be erected complete with restaurant bar and kitchen for $25,000. A 10 per cent return on the investment would repay the city, and furnish it with adequate first-class comfort-station facilities, free, which no community can now afford.

In small towns, frequently without hotels or other obvious public facilities, the need for the City Rest House is urgent. It is a service not only to inhabitants, but also to the streams of automobile visitors coming into or passing through the community and now dependent largely on the facilities of filling stations. These rest houses, well maintained, convenient and hospitable, would stop many a through car and perhaps result in added business for the town. No town is too small to have one, and no city is too large to develop an adequate number. Any additional details and information I can furnish may be had direct or through THE AMERICAN CITY.





TYPE B

THE "LEVITAN" PLAN FOR A SELF SUPPORTING, REST HOUSE: SERVICED BY LUNCH ROOM HELP
— PLAN OF GROUND FLOOR —

BENJ. W. LEVITAN R.A.
ARCHITECT
276 FIFTH AVE. NEW YORK

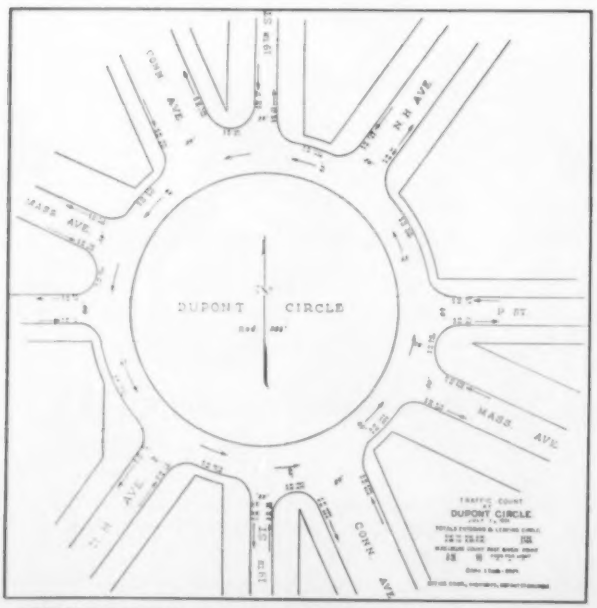
Municipal Highways Their Planning and Design—Part I

By CAPTAIN H. C. WHITEHURST
Director of Highways, District of Columbia

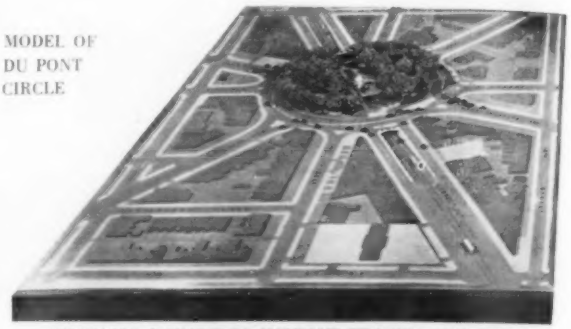
IN SOME ways Washington, D. C., is unusually fortunate in its street layout, while in other ways the layout presents almost insurmountable difficulties in the handling of present-day traffic with safety and dispatch. The street system in the main has been carefully planned; changed conditions, however, have brought about traffic problems at many locations throughout the city. The conventional checkerboard system of streets with diagonal avenues superimposed and usually heavily traveled, has created dozens of multiple and irregular-shaped intersections that require reconstruction in order to meet the demands of safety and yet permit a free flow of traffic.

The city of Washington has more circles and squares than any other city in the world. The street system was laid out with the Capitol as a center, the lettered streets paralleling the Mall, and the numbered streets at right angles to them. For ease of travel between the salient points, as well as between other probable centers, the French engineer and city planner, Major L'Enfant, superimposed upon this rectangular system a diagonal system of avenues radiating from the Capitol, supplemented by other diagonals paralleling or intersecting them.

It was not until well after the advent of the automobile that any thought was given to the movement of traffic about those circular areas. Since that time, rules have been adopted providing that all traffic shall move in these circles to the right; thus making them one-way, with traffic moving counter-clockwise. It is generally conceded by highway and traffic engineers that the roadway in these



PRESENT LAYOUT OF DU PONT CIRCLE, WASHINGTON, D. C.



MODEL OF DU PONT CIRCLE

PROPOSED LAYOUT TO IMPROVE TRAFFIC CONDITIONS

circles should provide for one-quarter as many traffic lanes as the total free lanes of traffic which enter the circle from all intersecting streets, provided that the maximum number of lanes does not exceed six.

The highway engineers of the District, in cooperation with traffic engineers, are attempting to solve many of these problems and to build real safety into the streets of Washington. The work of making changes in existing streets so as to provide greater safety, convenience and comfort, as well as constructing new ones and performing the necessary repairs, must be carried on with as little inconvenience to the public as possible.

In our study to design and plan for highway improvements in the District of Columbia, the problems have been considered under three major topics:

(1) Widening of streets and special widening for intersection capacity

(2) Re-design of circles to meet present and provide for future traffic needs

(3) Grade separations and express highways

Widening

Washington is unusually fortunate in owning streets of such width as will permit, in nearly all instances, of widening without the acquisition of land. The acquisition of land, often improved with substantial buildings, is the major problem that confronts most cities in street-widening activities.

While street widths, that is, right-of-way widths, are in nearly all cases adequate, on a great many streets we have not the necessary roadway widths to permit of a free flow of traffic; in fact, the saturation point has been reached on quite a number.

Roadway Widths

During the past ten years in Washington, as in most areas, the number of motor vehicles has increased at a much greater rate than the ability of the roadway capac-

ities to care for them. In order to meet this situation, it will be necessary for us to devote more and more attention to roadway widths, especially at intersections, which is where the real limit on roadway and street capacity exists. Even if no time were lost in starting, traffic approaches or throats at intersections should be considerably wider than the roadways carrying traffic to them. Splaying or widening the roadways near intersections makes it possible, when traffic is stopped for lights, to increase the capacity of these intersections by permitting a greater number of lanes of traffic to stop and line up at an intersection than if the intersection widths were the same as between blocks.

Value of Traffic Lanes

As streets and highways are widened in order to take care of the increased volume of traffic, the necessity and efficient use of traffic lanes becomes more and more important. Multi-lane streets and highways will not, however, carry anywhere near their capacities unless the drivers of vehicles stay in their proper lanes instead of weaving in and out or straddling the lanes. Lane lines and center lines are now being built into our highways or painted onto the roadway surfaces.

Streets are laned primarily to direct traffic into the required channel of flow. In effect, laning is to free-wheeled vehicles what rails are to street cars and trains.

The results to be expected from laning are: (1) lessening of confusion; (2) reduction of accidents; (3) classification between slow-moving and heavy-duty vehicles and lighter, faster-moving passenger cars; (4) orderly arrangement of vehicles at the approach to intersecting streets; (5) more expeditious movement of traffic; and (6) increased street capacity.

Lanes, arrows and sometimes a word or two marked on the pavement to direct traffic into proper position to make a left or a right turn or to rotate around the circle, lessens confusion. Such markings in a short time become familiar to regular drivers and are in the best possible place to give information to strangers. When lines are marked, there is a degree of assurance to each driver who keeps within his own proper lane that he may proceed with reasonable security and not expect his right-of-way to be taken by another driver. This has a tendency to reduce accidents. With proper laning and proper width of streets at intersections, three or more vehicles abreast can get away as one when the signal changes, but three in line require much more time to get into motion, one after the other. In the case of segregating traffic, lane marking permits traffic on the fastest vehicle lane to proceed uninterrupted. If slow-moving vehicles are all over the street, the entire traffic movement is reduced to the speed of the slowest.

The Department of Highways of the District of Columbia has adopted as standard in asphalt pavements the construction of permanent center-line marking in all roadways of 40 feet and over. I am satisfied that with proper laning and proper use of these lanes, any street system will carry from 35 to 50 per cent more traffic than if the streets were not laned.

Curb Radius

Most city streets were designed and laid out in the days of horse-drawn traffic. Conditions have changed, and the automobile has brought new problems to be solved by the highway and traffic engineer. One of these involves the curb radius at street intersections. In most cities, traffic and street improvements have progressed to the point where it is obvious that wide curb returns are not only advantageous, but necessary for the smooth flow of traffic. It is equally obvious that as the radius of curbs is increased, the speed of vehicles making turns increases, with resultant rise in hazard and inconvenience to the pedestrian. These facts, therefore, have to be taken into account in increasing the radii of curbs.

Solving Traffic Tangles at Circles

The city of Washington faces the problem of re-designing the focal points of its circles to provide for maximum flow of traffic. One of the most important of these problems exists at Dupont Circle, the intersection of Connecticut and Massachusetts Avenues, two of the main avenues of the city. There are five streets intersecting at this circle. The problem is this: Dupont Circle is a ten-point intersection with 53,000 vehicles of all types entering the area every 24 hours. Congestion became so acute during the morning rush hour period that it was necessary to divert or detour a certain portion of the traffic. The greatest volume of traffic occurred during the afternoon rush period on the east side of the circle between Massachusetts Avenue and New Hampshire Avenue. A total of 3,000 vehicles passed this point in an hour. The combined area or width of the streets entering the circle is 504 feet, one-half of which, 252 feet, is used for entering-traffic and the other half for exit-traffic. In the main, the roadway around the circle is 45 feet in width, complicated on the west side not only by the presence of street-car tracks but by cars running in the opposite direction to vehicular traffic. Consideration was given to the narrowing of the inner sidewalk so as to obtain a wider roadway. Consideration was also given to the placing of street-car tracks on both sides of the circle. While this procedure would help the situation, it would not be a solution of the problem.

Engineers of the Department of Highways, in cooperation with the Director of Vehicles and Traffic, have studied and considered many different plans looking to improvement in traffic conditions at Dupont Circle. After many months of study they came to the definite conclusion that unless the through-traffic of Connecticut Avenue, consisting of both street cars and vehicles, were entirely separated from other traffic, little could be accomplished to promote free movement of traffic and promote an increased use of the streets entering this circle.

Plan for Relief of Dupont Circle

The plan that has been developed provides for a grade separation for Connecticut Avenue through-traffic, but at the same time retains ample roadway capacity to serve the abutting property, and to allow Connecticut Avenue traffic to transfer to other streets entering the circle, if it does not desire to go straight through. The roadway around the circle has been slightly widened by the reduction of the inner sidewalk width. Further, the roadway has been divided into two parts, so as to permit through Massachusetts Avenue traffic on the inner roadway. This will make possible the placing of Massachusetts Avenue on the flexible progressive lighting system, so that traffic can move straight through, as on any light-controlled street. In other words,

Massachusetts Avenue traffic, at the entering and exit points, becomes a simple intersection. The outer roadway of the circle will be used for all other entering streets, and for the transfer of traffic from any street entering the circle area to any street leaving the circle area.

Plan for Relief of Thomas Circle

Thomas Circle, another problem, is an eight-point intersection with approximately 46,000 vehicles of all types entering the area every 24 hours. The problem, while similar to that existing at Dupont Circle, is not, in our judgment, susceptible of similar solution. The right-of-way width of 14th Street is not sufficient to permit the construction of an adequate width underpass for street cars and vehicles and at the same time leave sufficient room for surface roadways on 14th Street to serve the abutting property. It was therefore decided to have the underpass in the line of Massachusetts Avenue, and to carry 14th Street through the circle, using the roadway around the circle for other streets entering this area, as well as providing means of transferring traffic from one street to the other.

The principles involved in a solution of the problems of both of these congested areas are practically the same; however, owing to conditions, it is not believed that the same solution would apply. We have found that where two or more principal thoroughfares, both carrying heavy traffic, enter a circular area such as Dupont and Thomas Circles, together with additional feeder streets, the smooth, uncongested flow of traffic is next to impossible. On the other eight-point intersections in Washington, where only one of the streets carries heavy traffic, the rest acting as feeder streets, the conventional layout of a round point is ideal.

(*To be continued in the July issue*)

ACKNOWLEDGMENT.—From a paper presented at the 1938 Annual Meeting of the Association of State Highway Officials of the North Atlantic States.

Small Water-Works Has CO_2 Trouble

Centreville, Mississippi, Installs an Aeration Tower and Adds Lime to the Aerated Water

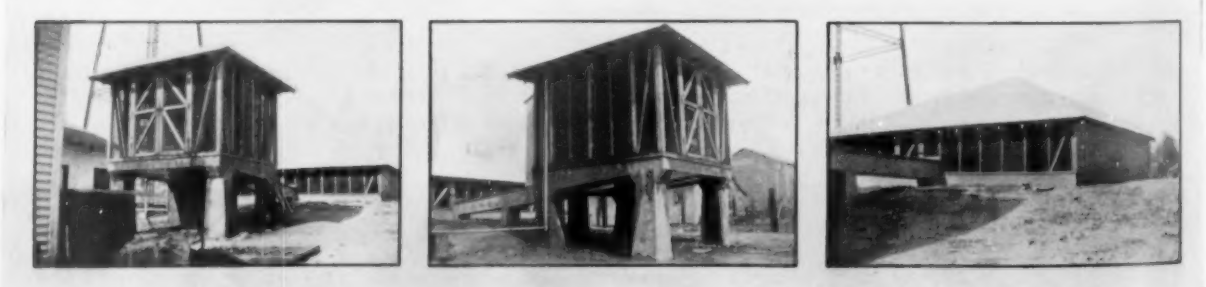
By RALPH W. GILBERT
Superintendent, Light and Water Plant, Centreville, Miss.

FOR years Centreville experienced a great deal of trouble with a high carbon dioxide content in the water, which destroyed mains, service lines and the water-storage equipment of consumers. The solution has been simple and very effective. Water is pumped directly from the wells into the top of an aeration tower, shown in the illustrations, where the pipe lines divide, and the water runs into two 10-foot sections of 2-inch perforated pipe. This sprays the water downward over a group of eight perforated trays filled with coke. When the water reaches the bottom of the aerator, it is carried through a conduit to the storage reservoir. At the entrance of the conduit is a Wallace & Tiernan type MO dry chemical feeder which adds a small portion of hydrated lime to the water. The conduit is baffled, alternately, every 12 inches, which mixes the lime well enough with the water so that it always delivers a consistent sample at the reservoir.

By aerating the water and adding approximately 45 ounces of hydrated lime to 85,000 gallons of aerated water, the pH has been brought up to 8.4. The aeration alone reduced the carbon dioxide from 52 ppm to 4 ppm, making it necessary to add only a very small amount of lime to obtain the desired hydrogen-ion concentration.

The foundation and floor of the aerator are of reinforced concrete. The tower and trays are No. 1 cypress, and all metal parts such as nails and bolts are galvanized. Aluminum screen wire seals the aerator against the inroads of insects and birds, and the coke trays are lined with 16-gage, ¼-inch mesh, galvanized hardware cloth.

The entire cost of the aeration and chemical treatment system was approximately $1,000. This cost will be repaid in a short time by the elimination of a large number of water-main and service-line repairs and replacements otherwise required.



THE AERATOR AND RESERVOIR AT THE CENTREVILLE, MISS., WATER WORKS
Left—Rear of the aerator, with the reservoir in the background. Center—Back and left side of aerator, showing the 2-inch line from the well. Right—The reservoir and the gravity flume or conduit from the aerator

Apparatus, Fire Alarm and Spirit of the Elmira Fire Department

By DANIEL COLLINS
Fire Chief, Elmira, N. Y.

THE Elmira Fire Department has four houses, seven companies and seventy-four men. The apparatus consists of five pumpers, and three ladders, one of them being an aerial equipped with a 750-gallon pump. We have a definite replacement program, and the city administration is 100 per cent favorable to maintaining it.

All apparatus is American-LaFrance and is A-1. The pumpers are all 750-gallon and of the following ages: Nos. 1 and 2 at headquarters, 11 years; No. 3 in Southport section, quad, 6 years; No. 4 in Northeast section, 23 years; No. 5 in Northwest section, 16 years. They are equipped with Burrell All Service and McCaa 2-hour oxygen masks, and H-H inhalators.

The only thing the matter with Nos. 4 and 5 is age, both still delivering to capacity. There have been many improvements during these 16 to 23 years, however, and though we shall stay with No. 5 a while longer, No. 4 will be replaced in June by a Model 1938 that will be good to see, and the New York State Conference of Mayors and Other Municipal Officials will see it during their convention here June 8-11.

Our 85-foot aerial ladder was installed last year, and answers all alarms from schools, hospitals, the Home for the Aged, and the home for undernourished children. A 50-foot 3-inch hose line is strapped permanently to the aerial ladder, with a siamese connection always attached to the intake end to take the 2½-inch hose. Minor equipment includes a Browder life-net and a portable Grant Multiversal. There is a Sterling siren with red blinker.

ELMIRA'S FIRE HEADQUARTERS BUILT IN 1891

THE AUTHOR AT THE PROW OF HIS NEW AERIAL, LOOKING THROUGH A COPY OF THE AMERICAN CITY

Every Sunday morning this machine goes just outside the business section for practice.

We also serve West Elmira and the township of Southport, at $150 per call. One machine responds, and if there is insufficient hose a small ladder truck is dispatched with hose.

The interior of the headquarters building, erected in 1891, has been redecorated and painted, and even the headquarters clock, as old as the building, has received a new white face lettered by one of our men.

Gamewell Fire Alarm for 53 Years

The Gamewell fire-alarm system was originally installed in 1885 and has since been improved and extended in accordance with the growth of the city. Among the more recent improvements are included an automatic time-recording clock which prints on the register tape alongside each recorded signal, the exact minute, hour, A.M. or P.M., day, month, and year at which the alarm was received. This device is of the perpetual calendar type designed to automatically change all time and date periods for a period of 24 years.

The application of copper oxide rectifiers of the Rectox type resulted in the elimination of one-half of the storage batteries formerly required and a saving in electric current of approximately $275 annually. The 110-volt alternating current is brought directly to the terminals of the rectifiers which serve to supply direct current of proper voltage and amperage to the fire-alarm system; one set of batteries floated on each circuit are thus maintained in a fully charged condition at all times and in the event of any interruption of the alternating current automatically supply

operating current to the fire-alarm system. The motor-generator set formerly used for charging the batteries is kept available for standby service.

The central fire-alarm equipment of 12-circuits capacity is located on the first floor of Fire Department headquarters. Each fire station is equipped with a gong and register. Alarms are also automatically sounded on gongs at police headquarters and the water-works pumping station. There are eight box circuits and one local alarm circuit employing 60 miles of wire in actual operation, 12 miles of circuit in the business district being underground. The system includes 122 boxes all of Gamewell manufacture and of the non-interfering and successive types, the last twelve purchased being of the Three-Fold type which will transmit alarms correctly over broken and otherwise disordered circuits. This type of box when operated on a "busy" line, that is, while another box is sending an alarm, will make at least twenty attempts—one at the beginning of each round—to send a signal, as compared with only four attempts by the older types of boxes.

In the congested business area the boxes are installed at practically all street intersections. A box is installed at every school and hospital within the city. Four rounds of box alarms are automatically transmitted over the system. Telephone alarms are received by the operator at the private switchboard, sent out over the Fire-Department telephone lines to fire stations, and confirmed by the manual transmitter over the alarm lines. Twenty-four-hour telephone service is constantly maintained.

T. J. Donahue is Superintendent of Fire Alarm, a position he has occupied since 1930. He is assisted by two linemen who are members of opposite platoons of the Fire Department, and three telephone operators working single shifts.

New Metal Arch Bridge with Unusual Features

Sidney, Nebr., Replaces Damaged Structure in City Park

By J. M. HAZLEWOOD
City Engineer, Sidney, Nebr.

LODGEPOLE CREEK, claimed to be the longest creek in the world, starts in the Medicine Bow National Forest in Wyoming, a distance of almost 200 miles from Sidney, Nebr. Several years ago a beautiful tract of land along this creek in the city of Sidney was donated to the city by I. E. Grabill for use as a Legion Park.

Since the park lies on both sides of the stream, it was necessary to provide crossings. Several planks took care of foot traffic at convenient places, while a heavy concrete structure was built to carry automobiles. By placing flashboards across the waterway openings under the bridge, a pond was formed above to serve as a swimming pool in summer and a very fine ice-skating rink in cold weather. Improvement of this park is to be a progressive program. The first work done was the construction of a small wading pool and swings for the children. Trees were planted in attractive groups, and flower gardens with winding drives were outlined and started.

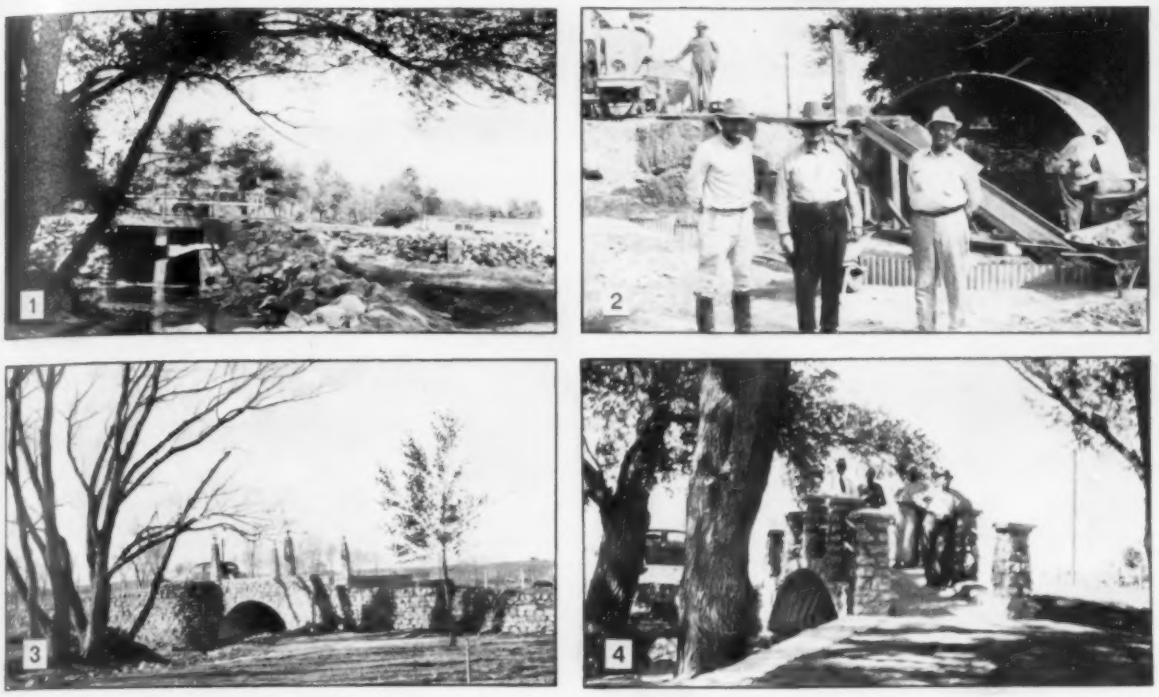
In the spring of 1936 the City Engineer was instructed to draw plans for the construction of a concrete arch footbridge to be built across Lodgepole Creek to replace the old foot planks. The estimated cost of this concrete arch was more than the City Park Commission had to spend. It was found, however, that an Armco Multi Plate arch could be built at about one-third the cost of the arch first planned. The Park Commission decided that they would build this metal arch, and the work was done with WPA labor under the supervision of the Street Commissioner and the City Engineer. The city had been saving broken-up concrete walks and curbs for park work, and so all of the exposed posts and walls were laid up of this broken concrete, giving a rustic appearance.

Old Bridge Replaced

The patrons of the park and the city authorities were so pleased with the attractiveness and strength of the footbridge that in the summer of 1937, when the heavy concrete bridge and dam failed, they immediately made plans to replace it with another metal arch structure. The structure which failed was of massive proportions without reinforcement and with its footings resting directly on the bottom of the creek. Seepage gradually washed the fine material from under the footings, causing the lower part of the structure to settle away from the top, as is seen in one of the illustrations.

Since the new structure was to be a combined bridge and dam, extra care was taken to create a design that would be both practical and pleasing to the eye. The dam or weir is semi-circular in shape, with its ends meeting the upper wing walls, which curve outward from the arch footings. To guard against seepage, a row of Armco corrugated plates was driven 8 feet below the floor line, under the weir and the upper wing walls. Two Calco Model 101 steel gates, with 6 feet of 24-inch Armco pipe, placed one on each side of the overflow weir, provide emergency outlets for the impounded water.

The area between the weir and the arch, and the floor under the arch, are well concreted to provide against the scour of flood waters. The face of the overflow weir has a



BUILDING THE ARCH BRIDGE IN LEGION PARK, SIDNEY, NEBR.

1. The old bridge which failed by undermining. 2. Start of the new structure. Left to right are: J. M. Hazlewood, City Engineer; I. E. Grabill, donor of the park site; and Carl Christ, contractor. Armco sheet piling under the weir and wings of the bridge is visible in the foreground. 3 and 4. Views of the completed structure

stepped slope of rough concrete blocks providing an attractive waterfall in summer. All the spandrel and wing walls are laid up rough with broken concrete blocks in cement mortar. Four light posts top the corners, making it possible to use floodlights on the swimming pool or the skating rink, depending on the season.

The span is 12 feet, with a rise of 6 feet, and the roadway width is 15 feet. Added waterway opening was secured by extending the footings 2 feet above the floor.

The structure was built by C. W. Christ under contract, using WPA labor, and under the supervision of the City ...gineer.

National Center for Safety Education

DR. HARRY WOODBURN CHASE, Chancellor of New York University, has announced that a national center for safety education will be established July 1 in the University's Division of General Education at Washington Square, New York City. The center will be set up under a special grant of funds from the National Conservation Bureau, which is maintained and administered by 61 stock casualty insurance companies.

The new project, the first of its kind to be inaugurated in the United States, will provide a comprehensive program of information, instruction, and research in problems of accident control. Dr. Herbert J. Stack, at present Director of the Education Division of the National Conservation Bureau, will be its Director. As part of the program, a maximum of 18 research fellowships in safety education, with stipends ranging from $400 to $1,200, will be offered for graduate students enrolled in the University's School of Education during the 1938-39 academic year. Courses will be open to properly qualified candidates studying for graduate and undergraduate degrees.

"The value of safety education has been vividly shown," says Chancellor Chase, "by the number of children's lives that have been saved through the teaching of safety in the schools since 1922, when the organized child-safety movement was launched. From 1922 to 1936 the accident fatality rate in the age group of five to fourteen years decreased 15 per cent. At the same time the rate for all ages combined increased 24 per cent. These statistics prove that safety education does help cut down the number of accidents and that we need much more of it, not only for the children in the grade schools, but for high-school and college students, and for men and women in all walks of life."

Twenty-six states and more than 100 cities have already published courses in safety, and safety education will be the subject of the 1940 Yearbook of the American Association of School Administrators. At least 5,000 high schools throughout the country are now giving driving instruction in some form. The State of New York, under the Stokes Law passed by the Legislature last year, requires the teaching of safety in all public schools, and many other states have similar laws.

During the 1938-39 academic year, according to Dean Dearborn, courses for graduate and undergraduate students will be offered at the University's center in some or all of the following fields of study: materials and methods of teaching safety education in elementary, secondary, and vocational schools; safety in athletics and recreation; organization and administration of safety education; curriculum building; materials and methods in first aid; essentials of industrial accident prevention; and driver training. Graduate seminars will also be conducted. All courses will be properly credited in the University's School of Education or other schools.

Preliminary to the opening of the safety education center, the University will conduct an intensive two-weeks course in "Materials and Methods of Teaching Safety," beginning June 7 under the direction of Dr. Stack for college instructors and directors of health, physical education, and safety.

A FORT WAYNE STREET REPAIR CREW AT WORK
No barriers are used; traffic is permitted through at all times

1937 Street-Maintenance Costs in Fort Wayne, Indiana

By W. H. DROEGE
Asphalt Superintendent and Materials Chemist, Fort Wayne, Ind.

THE detailed annual report covering the costs of street repairs in Fort Wayne, Ind., is summarized below. Notwithstanding the increased yardage of asphalt pavements, annual costs have been decreasing steadily. For example, the following comparison may be of interest:

1929	1937
1,949,809 square yards	2,835,829
$34,983.27 total cost repairs	$23,700.00

Asphalt Maintenance Less

The total maintenance cost per square yard of asphalt pavements for 1937 was $0.0059, a reduction of about 5 per cent as compared with 1936. This cost is equivalent to $69.50 per mile for a pavement 20 feet wide. The average age of the pavements repaired in 1937 was 23.82 years.

The following tables show the amount of repair material used by months, and the costs.

1937	Tons New Asphalt Mixtures	Days Repair Operation	Average Age of Pavements Repaired
January	52	17	28.20
February	112	23	27.10
March	106	23	25.80
April	96	21	25.60
May	203	24	22.00
June	259	23	18.70
July	162	21	18.00
August	164	22	20.00
September	138	22	23.70
October	116	18	24.60
November	88	18	27.90
December	61	17	24.30

Annual Maintenance Costs

W. H. Droege has been a contributor to the pages of THE AMERICAN CITY *regularly for several years with short articles on paving problems and costs. Among these are: "Penalty Specifications for Sidewalk and Driveways," page 44, December, 1934; "Cost of Asphalt Pavement Maintenance," page 45, January, 1935, and page 48, April, 1936; and "Publicizing Pavement Ages," page 70, April, 1937.*

Total tons new asphalt mix manufactured and used	1,557
Total days actual repair operation	249
Average age (years) of all asphalt pavements 1937	23.82
Total area of asphalt pavement under maintenance (sq. yds.)	2,835,829
Payroll (tests, supervision, manufacture, transporting, placing mixtures)	$16,400.00
Materials (asphalt, filler, sand, stone, cement, fuel, torches, oil, etc.)	6,117.83
Operating expense (telephone, plant repairs, lubricants, gasoline, trucks and roller, hardware, license plates, etc.)	1,182.17
TOTAL COST	$23,700.00
Divided expenditures for asphalt mixtures manufactured—used in street cuts, brick, concrete and macadam paving repairs made with asphaltic mixtures, 441 tons	$ 6,716.43
Asphalt mixtures manufactured—used in regular "asphalt pavement maintenance only"	16,983.57
Total expenditures for the year 1937, including all items	$23,700.00

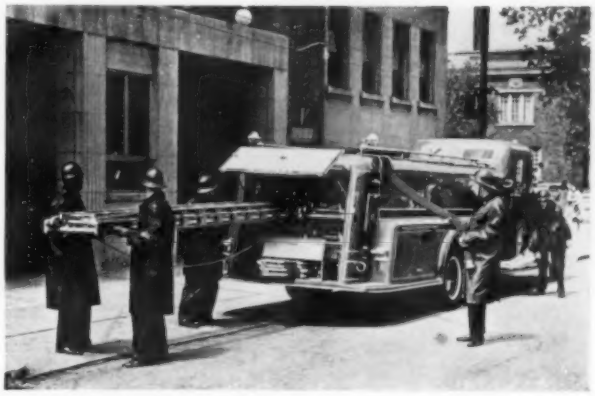
All-Purpose Ladder Truck Completely Enclosed

By RAY TILLER
Fire Chief, Waterloo, Iowa

THE most significant piece of fire apparatus of recent years is the completely enclosed city-service ladder truck just finished by American-LaFrance and Foamite Industries, Inc., for the city of Waterloo. Fredonia, N. Y., has a boxed-in ladder truck, and Pawtucket, R. I., has a roof over one of its ladder trucks but no end closures; but our new truck is the first factory-built standard city service ladder truck completely fitted, top, bottom and ends, with a custom-engineered overcoat.

The weather gets cold out here with only Minnesota between us and Canada. There is sleet, snow and ice that makes the ladders hard to handle. They come out of the fire-house nice and warm, and the snow falls on them and freezes the sections together, sometimes requiring a blow-torch to separate them—and at the same time damage them. These ladders are to give access to fire and to save lives. Rendering them as safe and sure as possible is more than an aid and convenience to firemen—it is protection to the trapped people who may depend on us to carry them down these ladders any winter night or day.

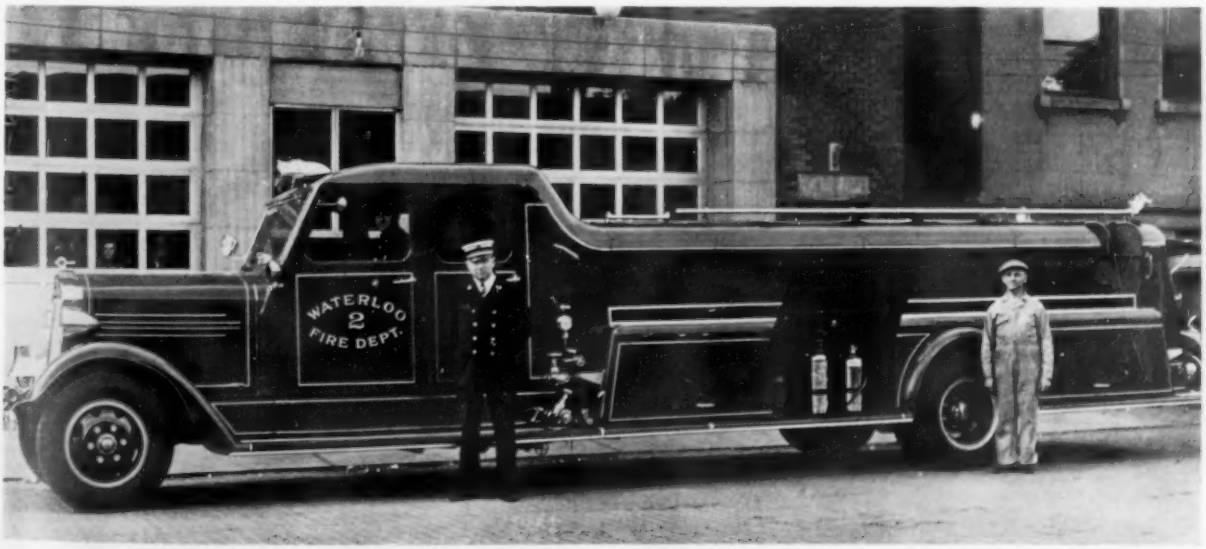
In summer it is dusty here when it is not raining, and the complete enclosure is dust- and rain-proof. When we get to the fire, we have dry, clean ladders. No skill or expense has been spared in building these ladders, and we handle them with care. They are made from Oregon fir trees 150 feet tall and 6 feet in diameter, and only one in 200 of these trees is selected for ladder stock. The lumber is air-dried for three years, then samples are tested for residual moisture, and 30 per cent of the stock is discarded. The rungs are of New York State hickory air-dried for 1½ years. The ladders are built for certain service, and their cost and quality merit the best of care. That is why we propose to store them and transport them in a steel deposit box on wheels. Only thus can we be sure of getting from them the service we know is in them.



LADDERS COME OUT AND GO IN EASILY

Six-Men Cab

If the ladders are important, so are the men who go along to use them. Consequently, we protect them too, with a



THE FIRST FULLY ENCLOSED FACTORY-BUILT LADDER TRUCK

Says Chief Tiller: "This machine has created a great deal of interest. On May 10, about 50 fire chiefs and city officials from 16 surrounding cities were here to see the machine. The towns represented were: Kansas City, Kans., 122,000 population; and, for Iowa, Ames (10,000), Belle Plaine (3,200), Burlington (27,000) Cedar Falls (7,000), Cedar Rapids (56,000), Clinton (26,000), Des Moines (142,000), Dubuque (42,000), Independence (3,691), Iowa Falls (4,112), Marshalltown (17,000), Mason City (23,000), Oelwein (7,794), Ottumwa (28,000), Sioux City (79,000.)" Also present was J. Vincent Pyle, State Fire Marshal, Des Moines

four-door sedan cab seating six men on two seats facing forward.

The sides of the enclosure are made flush with the outside of the wheels, with a running board on top extending from the rear of the cab the full length of the body, only 34 inches below the top of the apparatus, where 1,200 feet of 2½-inch hose is carried. Easy access for paying the hose in or out through side outlets is provided by this step. The hose body and equipment box on top of the ladder compartment are covered by a buckled-down tarpaulin. Space is available up here for placing used salvage covers and other such items to be returned to headquarters.

Below the level of the running-board step on each side of the apparatus, in space which normally would be used for running boards, are three equipment compartments 54 inches long by 22½ inches deep and 12 to 30 inches high. Each is closed by a standard lift door.

Getting Out the Ladders

The ladders are mounted in a total over-all length of only 20 feet. Above them is the steel roof, over which is the hose body equipped with drains extending through the ladder chamber. A steel floor prevents a splash from the road getting onto the ladders.

The ladder equipment consists of one 50-foot three-section extension ladder, two 35-foot extension ladders, two 30-foot extension ladders with side rails of the same size and specifications of a standard 35-foot ladder. These 30-foot ladders take the place of 24-, 28- and 30-foot wall ladders. Two 20-foot wall ladders, one 16-foot and one 12-foot roof ladder, and six pike poles, complete this equipment.

The ladders and pike poles are accessible from the rear of the truck by raising the rear door, which is in two sections. The lower section opens onto the upper section, which hinges up, giving ample clearance to remove all ladder equipment. The ladders run in slides and are locked and unlocked under 400 to 450 pounds pressure by BK vacuum equipment mounted inside the compartment. A finger pull on a little ring handle trips the valve and releases the ladders; a push locks them in place. The pike poles nested in the upper left of the ladder chamber set in tubes in the farther end of which is a spring plunger which causes the pole to jump forward about 8 inches. Each pole is fastened firmly in place by a cotter-pin. An Atlas life-net is carried in the rear, where there is also an electric lamp.

All-Purpose

This machine is a complete city service ladder truck, including hose, booster pump, 200 feet of booster line hose, 85-gallon water tank, plus the equipment of a salvage and rescue truck. The entire apparatus, carrying 262 feet of ladders, is only 33 feet 7 inches long, 7 feet 11 inches wide, 7 feet 11 inches high at the cab and 6 feet 10 inches to the top of the hose body.

Another departure in design, in addition to the large cab for the men and the streamlined covering for ladders and tools, is the provision for placing a pump of 750 gallons or more under the driver's seat, thus converting the machine into a quadruple.

Primer Teaches Safety to Children

HERE are reproduced a diagram and a typical set of questions and answers from a 39-page Traffic Safety Primer which, prepared first in 1935 by the Streets and Safety Committee of the Austin, Texas, Chamber of Commerce, has gone through five editions, and is placed in the hands of every high-school student and the teachers of all grades in Austin. It is a live subject in Austin now. J. C. McClain is Chairman of the Committee. Page 19:

Emergency Vehicles

Q. *What are the principal emergency vehicles?*

A. Ambulance, fire equipment, and police equipment.

1. AMBULANCES

Q. *Does an ambulance have the right-of-way?*

A. Yes, on an emergency run.

Q. *Should an ambulance so exceed the speed limit that it is a hazard to other possible victims?*

A. No.

Q. *Is every ambulance run an "emergency run"?*

A. No.

Q. *What is the first prerequisite for an ambulance driver?*

A. He must be courteous.

2. FIRE EQUIPMENT

Q. *Should a fire truck operate at such a rapid speed that it is likely to destroy property and kill citizens at busy street intersections?*

A. No. One life is worth more than much property and, in the majority of fires, only a limited amount of property is immediately involved.

Q. *What should you do immediately when you hear the warning of an approaching fire truck, police car, or ambulance?*

A. You should immediately pull to the curb and stop your car and remain stopped until the vehicle has passed.

Q. *Is it proper to follow a fire truck on its way to answer a fire alarm?*

A. No. You are violating the law when you are closer to this truck than 600 feet (two blocks).

Q. *How close to a fire are you permitted to park your car?*

A. It is against the law to park nearer than one block.

Q. *Is it a violation of the law to drive over a fire hose?*

A. Yes.

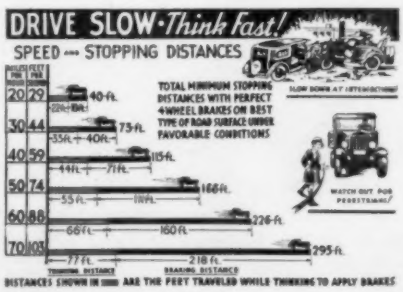

DRIVE SLOW · Think Fast!
SPEED — STOPPING DISTANCES
TOTAL MINIMUM STOPPING DISTANCES WITH PERFECT 4-WHEEL BRAKES ON BEST TYPE OF ROAD SURFACE UNDER FAVORABLE CONDITIONS
SLOW DOWN AT INTERSECTIONS!
WATCH OUT FOR PEDESTRIANS!
20 29 40 ft.
30 44 75 ft.
35 ft. + 40 ft.
40 59 115 ft.
44 ft. + 71 ft.
50 74 166 ft.
55 ft. + 111 ft.
60 88 226 ft.
66 ft. + 160 ft.
70 103 295 ft.
77 ft. + 218 ft.
TRAVELED WHILE THINKING
BRAKING DISTANCE
DISTANCES SHOWN IN [illegible] ARE THE FEET TRAVELED WHILE THINKING TO APPLY BRAKES

DIAGRAM FROM TRAFFIC SAFETY PRIMER, AUSTIN, TEXAS

The Yakima Sewage-Treatment Plant

City of 22,000 Places New Plant in Operation, Constructed by WPA

THE city of Yakima, Wash., is about 85 miles above the mouth of the Yakima River where it empties into the Columbia. Between Yakima and the mouth of the river are many towns and rural communities depending upon irrigation to supplement the inadequate rainfall. These cities and towns, located down the river from Yakima, have, at various times in the past, threatened to bring suit against the city for pollution of the river due to dumping of raw sewage. At one time these lawsuits, if consummated, would have amounted to over one million dollars. Several years ago the city officials realized that it was imperative that a modern sewage-treatment plant be constructed so as to eliminate a serious threat to the health of the citizens in the communities below Yakima. The cost of such a plant would have required bonding the city for a considerable sum, which was not desirable, since the citizens did not wish to assume an additional financial load. The new sewage-treatment plant, constructed with the assistance of the Works Progress Administration, now eliminates any danger of contamination of the river. The value of this plant to the citizens of the Yakima Valley is inestimable.

In the past few years the city of Yakima has added 187 acres to the incorporated limits of the city. This rapid growth has added many new consumers for city water service, thereby materially increasing the revenues of that department. The operation and maintenance of the sewage-treatment plant is under the jurisdiction of the Water Department, and as a result the citizens will not be required to pay for the plant by the issuance of bonds. The operation and maintenance costs of this type of plant are small and will not add a great burden on the Water Department. In short, the city has solved its sewage problem for years to come without making it a burden on the citizens who are to benefit from the installation of this plant.

The New Primary Plant

The sewage from the city of Yakima is taken to the plant in a 48-inch concrete pipe to the entrance channel, which is 4 feet wide and provided with an emergency overflow weir as a by-pass to the old sewer. This channel is followed by a Parshall measuring flume and grit channels. The grit channels are cleaned by a discharge of grit through the bottoms into a small car operated on a track extending to the grit dump lying east of the plant. Sewage after leaving the grit channels passes through two 25-inch Comminutors and enters four channels, each of which serves a clarifier. The clarifiers are each 90 feet in diameter with 8 feet side water depth.

GRIT CHANNELS AND CLARIFIERS AT THE YAKIMA, WASH., SEWAGE WORKS

A CLARIFIER AT THE YAKIMA SEWAGE WORKS JUST BEFORE FILLING

In the center of the plant is a building which contains the sludge pumps, heating plant, and controlling mechanisms, recording devices, chlorinating equipment, laboratory, etc. At the rear of this building is a platform for the storage of chlorine.

One of the clarifier tanks will be used at certain seasons as a retention basin for chlorination of effluent. When chlorine is used, the effluent from the three clarifiers is by-passed into this other clarifier and discharged into the effluent sewer which discharges into the Yakima River.

There are two sludge digestion tanks and a third tank for storage. The sludge from the digestion tank flows by gravity to the sludge drying beds, of which there are six, each 50 x 100 feet in size. The plant is designed to treat about 4 million gallons daily in winter, and up to 20 million gallons daily in summer. The reason for the large variation between the summer and winter sewage flows is the great amount of irrigation in the valley, causing the filtering of much water into the pipes of the sewer system.

The contracts for the clarifier and digester equipment were let to The Dorr Company, New York. The plant design and supervision of construction was under the direction of Stevens and Koon, consulting engineers, Portland, Ore., in cooperation with A. B. Collins, City Engineer.

Construction

Actual work on the Yakima sewage-treatment plant by the WPA was started December 5, 1935, with a small crew

consisting of 32 laborers, two carpenters, one foreman, and a timekeeper. By March, 1936, the crews had been increased to approximately 200 men. The foreman under employ of the WPA worked directly under supervision furnished by the sponsors. By close cooperation between officials of the WPA and the sponsors, very satisfactory work was accomplished.

A plant of this nature involves many complex and difficult problems in form construction. The placing of machinery, pumps, control apparatus, and the multitude of pipes was all accomplished with WPA labor. The electrical work was done by certified electricians furnished by the sponsor.

The plant was 98 per cent completed on September 27, 1937. As of that date the Federal Government had expended $132,238.04 for labor. The materials and other direct costs amounted to $29,782.13, or a total of $162,020.17. To date, the sponsor has contributed $153,293.42.

The plant is now in actual operation, only a few minor adjustments being necessary.

Recreational Use of Water-Works Reservoir

Springfield, Ill., Leases Restricted Frontage to Permanent Residents

IN RECENT years numerous municipal water departments, particularly in sections of the country where natural lakes are scarce, have opened large impounding reservoirs and the adjacent land for recreational purposes —hunting, boating, fishing and swimming. The protection of the water from these reservoirs, which are bound to be somewhat polluted by such uses, is furnished by filtration of the water, with chlorination as the last line of defense against water-borne diseases. Water-works officials in many instances have fought diligently against the use of their reservoirs for hunting, boating, or fishing, and the use of the adjacent territory for summer or permanent homes.

Leasing Lands

The city of Springfield, Ill., as part of its new municipal water-supply project, acquired land for a large artificial lake and a belt of marginal protective shoreland. The city secured special state legislation authorizing the leasing of portions of this shoreland for periods of sixty years to persons of good reputation and character. These leases are justified by Springfield water officials on the grounds that they will aid in protecting the lake from pollution, undue erosion, and other injury, by promoting forestation, the development of other suitable vegetation, and the improvement, care and maintenance of the premises. The leases may be occupied for these public purposes only and for the incidental residence of the lessee, called the custodian. There are at present approximately fifty newly erected houses on the leased lots, and about thirty houses which have been reconditioned and modernized.

The city is making every endeavor to encourage the development of permanent year-round homes and has leased the property subject to restrictions aimed to aid this objective. Seclusion and privacy are assured by giving the custodian the exclusive rights of bathing, fishing and boating along the lake frontage of his leased tract. This feature is enhanced by ordinances which limit the speed of boats within 400 feet of the shore to 5 miles per hour, thereby keeping most of the boat traffic a considerable distance from the shore.

Continuity of agreeable neighbors is encouraged by a provision which permits the custodian to sell or sublet his leasehold and improvements to any person approved by the city as being of good reputation and character, but only after first giving the neighbors an option for ten days to substitute a nominee as purchaser or sublessee at an agreed or arbitrated price. Controls to obtain a homogeneous and satisfactory type of development include a price limit on dwellings, ranging from two thousand dollars upward, depending upon the locality; requirements that the location and plans for dwellings and other structures be approved by the city; requirements for the maintenance of the property in good condition and repair, including the protection of trees and other vegetation necessary to prevent soil erosion; and restrictions against the keeping of domestic livestock, poultry, or noisy or dangerous dogs.

Financing

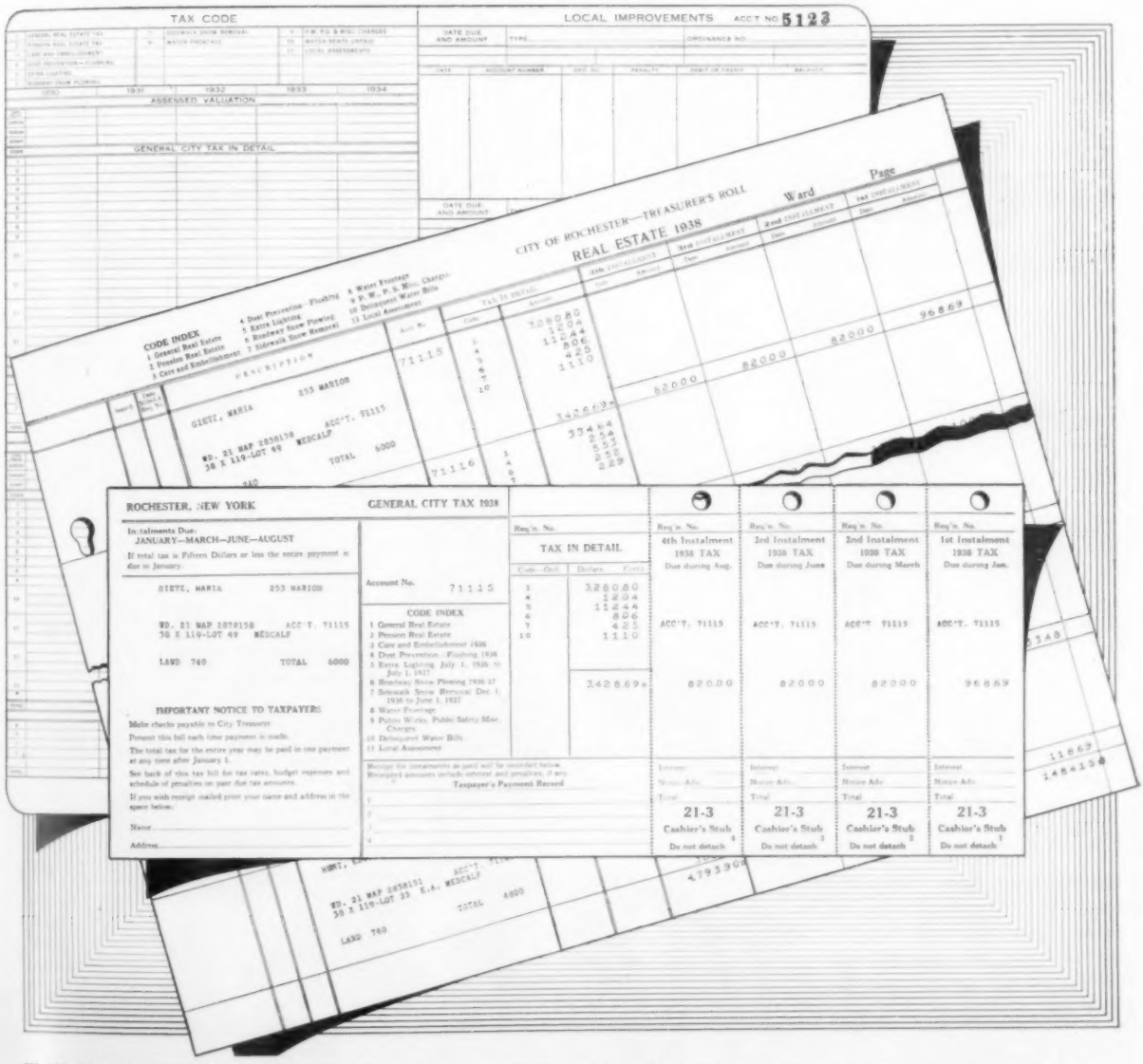
The leases run for sixty years with a provision that at the expiration of the lease the present custodian shall have the first opportunity to secure a new lease. The city has estimated tht approximately three-fourths of the lease price for the whole term will be required for the construction of such improvements as water mains, sewers, electric lines and roads. To encourage prompt payment of this sum, the city allows a 10 per cent discount for immediate payment, but, if desired, the three-fourths payment with no discount may be made in installments extending over 19 years. It is estimated that the remaining fourth of the lease price for the whole term will be required for the maintenance and policing of the leased property and of the neighboring public lands. Continuing payments at the rate of 6 per cent of this sum must be made each year thoroughout the term of the lease. The principal sum will never be called for. The leases contain provisions for voluntary cancelation by the custodian, cancelation by the city should the property be needed for public purposes, modification of restrictions, liability of the custodian for taxes, assessments, and service charges, right of entry of the city for specified purposes, and a waiver of city liability for damages to the property of the custodian resulting from the action of the waters of the lake or other causes.

Tax Accounting and Billing by Machine

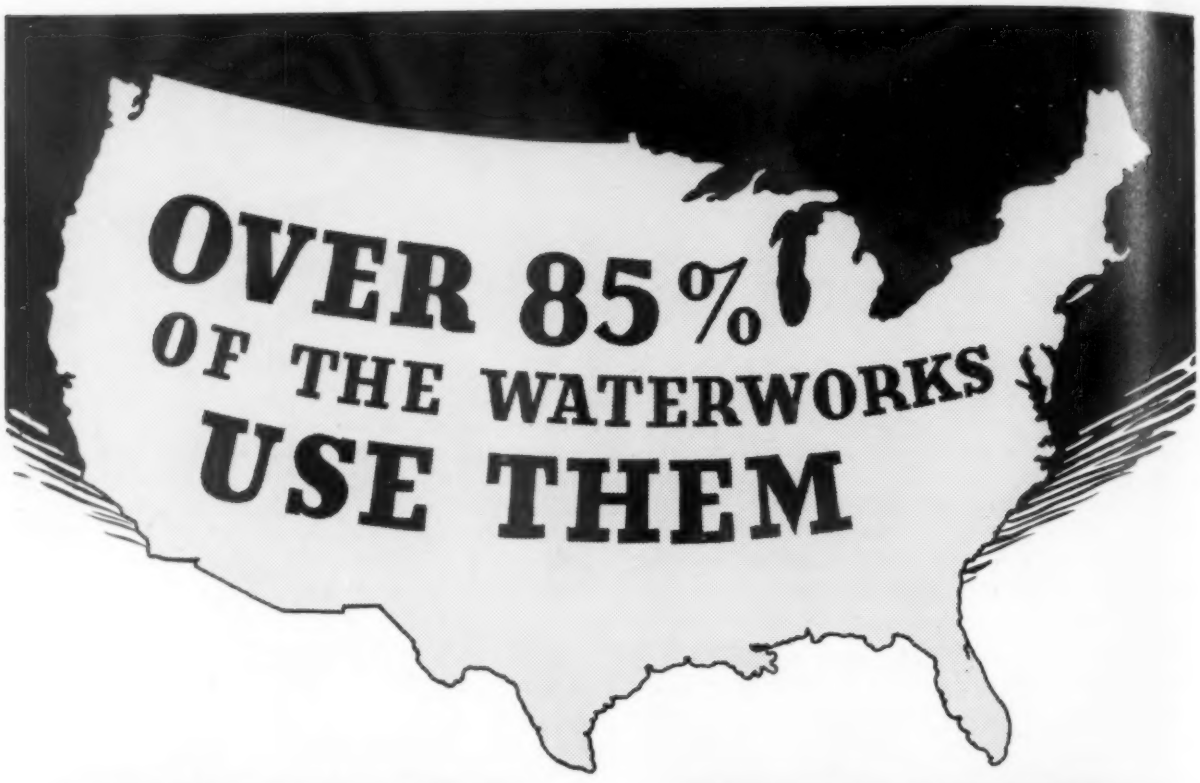
By FRED BRADBURN
Manager, Tax Bureau, Rochester, N. Y.

THE principal documents of the new system which accounted for Rochester's 1937 taxes and made out the bills are the tax roll and four-installment bill produced simultaneously, and the unit ledger card, 13 x 14¼, which keeps right up to date a ten-years history of assessment and tax data. There are 80,000 parcels.

Name, address, property description, valuation, and account number are printed on these three documents by Addressograph. All the other data, including tax details and the four installments, are posted by the six Sundstrand Model D accounting machines of the Underwood Elliott Fisher Co., shown on the cover of this issue. They are equipped with eight registers and two cross-footers and a ten-key motor-operated keyboard. These machines have the flexibility to perform all the operations required to calculate and print the information on both sides of the ledger card, the tax roll, the tax bill, and the general city tax journal.

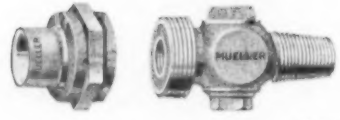


FROM TOP TO BOTTOM—TAXPAYER'S LEDGER CARD, A SHEET OF THE TAX ROLL, AND TYPICAL FOUR-INSTALLMENT BILL, ROCHESTER, N. Y.



MUELLER CORPORATION STOPS

MUELLER CURB STOPS



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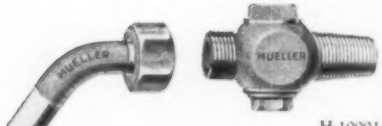

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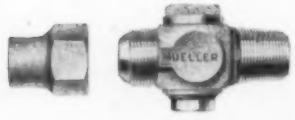
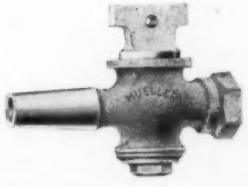


H-15000

Mueller Corporation Stops are preferred by over 85% of all water works because of their superior design and construction. The Mueller thread has a steeper taper that gives added strength next to the body where it is most needed—a tighter joint is obtained and there is no tendency to split the main or pull out.

Mueller Curb Stops have a much steeper taper on the keys than the average stop. This prevents sticking and wedging and also makes for easier operation. Each plug is individually lapped into its body, insuring a stop that is tight and will not leak. All Mueller Stops are thoroughly tested with 200 pounds per square inch hydrostatic pressure.

H-10221



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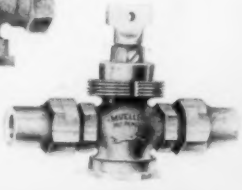


MUELLER CO. DECATUR ILL.

Mosquito Extermination

Nassau County, New York, Uses Motorized Units to Reinforce Hand Spraying

THE Nassau County Extermination Commission of Long Island, N. Y., has been most active in relieving the people of Nassau County from the scourge of mosquitoes. The eliminating or ditching of as many of the mosquito-breeding areas as possible is one of the primary steps in any mosquito-control program. The system of ditches on the salt marshes and the upland swamps and bogs is the backbone of the Nassau County mosquito control. These ditches are the only practical method of utilizing the finest of nature's mosquito enemies, the salt water killie-fish. In addition to permitting the ready ingress and egress of water in the swamps and on the salt marshes, the ditches allow the fish free access to the sources of breeding.

The system of mosquito-control ditches once having been established, they must be regularly cleaned, for they become plugged by tidal drift, vandals and other causes; and, in addition, they must be recut every few years, since they tend to break down and clog through erosion and the growth of vegetation. For this activity, a large cleaning gang is a constant necessity.

Fresh-Water Mosquito Breeding Places

In Nassau County alone there are over 2,000 upland fresh-water mosquito-breeding places, or violations, where elimination or control by ditching and draining is a practical impossibility. These include village filter beds, dumps, low lots surrounded by sidewalks in real estate developments, wet areas alongside highways, ponds with no outlets, swamps that it is impractical to drain, and other places too numerous to mention. All these must be inspected once every week and, when found breeding, so reported and promptly treated. A large staff of field inspectors, together with the necessary equipment, is employed in this activity. Also, there are thousands of acres of salt marsh, including some 175 islands, which must be constantly patrolled, so that if the ditching system temporarily fails, the resultant breeding can be killed before emergence begins. This branch of the work necessitates experienced inspectors, who must frequently use boats for their inspections.

THE HEAVY SPRAY FROM THE MOTOR EQUIPMENT

MOTORIZED HIGH-PRESSURE HARDIE POWER SPRAYERS ARE PART OF THE STANDARD EQUIPMENT

Spray Trucks

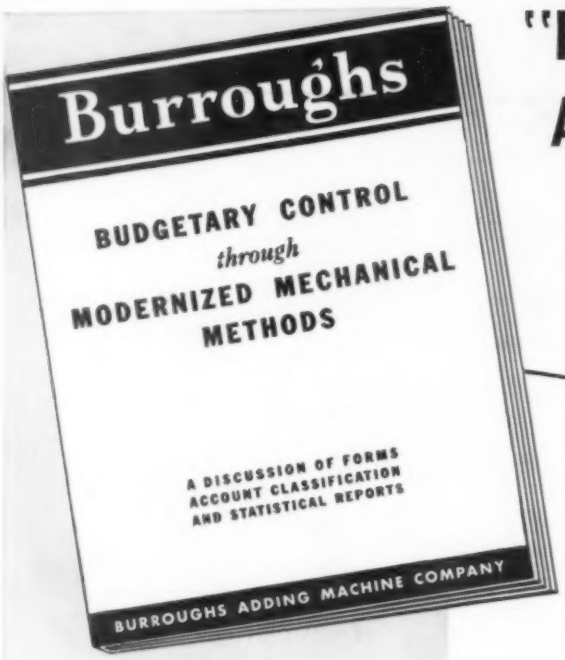
The reports of breeding found are turned in, and spray trucks, as illustrated, with experienced operators, treat the breeding waters with oil or larvicide the following day. The trucks are equipped with high-pressure pumps and 300 feet of high-pressure hose which permits spraying the majority of places with mechanical apparatus. Isolated places where a truck cannot approach must be sprayed by man-power. Either an oil or a specially prepared larvicide is used. The larvicide is deadly to insects but harmless to man, animals, birds, fish and vegetation.

Corner Catch-Basins

The thousands of street corner catch-basins are ideal breeding places for mosquitoes. Sheltered, warm and with abundant food, they present an enormous problem to the control agency. The best control of these is frequent spraying, and special pressure spray trucks have been designed for this purpose. In addition, the field spraying equipment is transferred to this activity when possible.

The House Mosquito

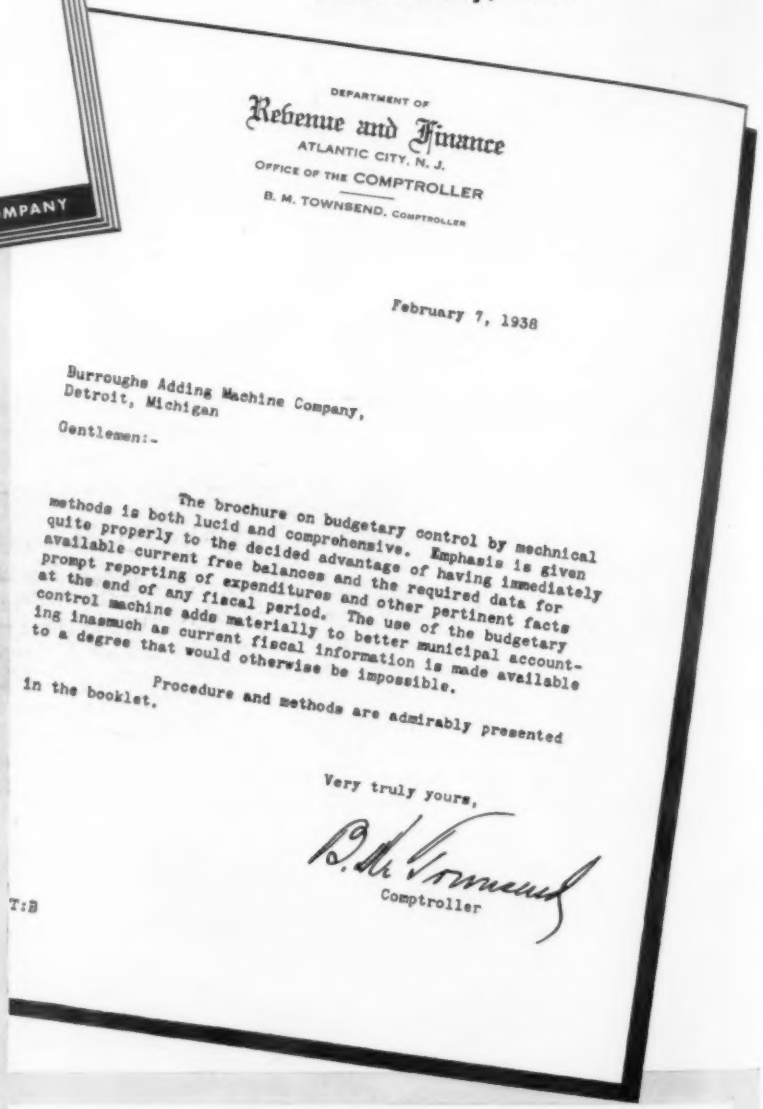
There is a vast problem presented in the control of the house or domestic mosquito. This mosquito usually migrates but a few hundred yards, invades the house itself, and breeds in any small container of standing water in the yard. It breeds so rapidly in the hot summer months that to control it all premises in Nassau County would have to be inspected once every week. This being impossible from a financial standpoint, the Commission details all



"PROCEDURE AND METHODS ARE ADMIRABLY PRESENTED IN THIS BOOKLET"

Says

B. M. Townsend, Comptroller
Atlantic City, N. J.



DEPARTMENT OF
Revenue and Finance
ATLANTIC CITY, N. J.
OFFICE OF THE COMPTROLLER
B. M. TOWNSEND, COMPTROLLER

February 7, 1938

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Detroit, Michigan

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Procedure and methods are admirably presented in the booklet.

Very truly yours,

B. M. Townsend
Comptroller

T:B

This genuinely helpful book is a practical guide to budgetary control for City, County, State and Federal Government offices. It tells how to apply modern methods in producing necessary records and reports of budget operations and fund balances. Classification of accounts; budgetary practices; recording and controlling revenues and expenditures; maintaining up-to-date budget balance—all are simply described. Included also are the methods for preparing reports and statistics on comparative forms for a quick check against income and expense estimates and reports of previous periods. Ask your local Burroughs representative to review this manual with you. Call the local Burroughs office, or mail the coupon.

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APPLYING LARVICIDE WITH HAND-POWER SPRAYERS IN PLACES THAT ARE INACCESSIBLE TO MOTORIZED EQUIPMENT

available inspectors on this work, and carries on an educational campaign to solicit the help of the home owner in the control.

Campaigns

Mosquitoes are constantly breeding in new places and giving trouble until their source can be located and controlled. They are very adaptable insects and worthy opponents for man's best efforts to control them. A pond which for some reason has not bred for years will suddenly give forth a brood of mosquitoes; a swamp which was cleaned yesterday will immediately become stopped up owing to a storm, and a brood will hatch out before the inspector can return from his appointed rounds. As these broods are reported, the Commission sets out traps which collect mosquitoes. From the collections, the species of mosquitoes are determined, and from this information the types of breeding places are known and can be more readily located.

The educational program is one of the important activities of the Commission. It is absolutely necessary that the public be instructed in the breeding habits of mosquitoes so that the Commission may have its full cooperation. Likewise, it is only fitting that the public be informed of the scientific progress that is being made in this specialized field, and know for what its tax moneys are being spent.

These, however, represent but a hasty vision of the many activities that are carried on. In addition, there are the experimental activities, the improving of equipment and of methods of inspection and spraying, the method of reporting and recording the various activities, and scientific and entomological meetings and inspections.

There is one feature of a mosquito control organization that should be mentioned in closing—the necessity at all times that the organization be ready for "peak load" conditions. The nature of the mosquito is such that overnight, owing to some storm or temperature conditions, breeding will occur in enormous amounts everywhere at once—generally two or three times a season. The control organization must always be ready to meet these conditions, or its effectiveness will be largely dissipated by such sudden occurrences.

—Text and illustrations by courtesy of the Nassau County Extermination Commission, District Office, Rockville Centre, New York.

Ray H. Sammis, Superintendent, has had over 25 years in this work, being one of the very first to make it a life profession. All the mechanical improvements and experiments of the Commission have been made under his guidance.

More Than Three Billion Dollars of Tax-Exempt Private Property in Fifty-Two Cities

REAL property exempt from general taxation for state and local purposes in 52 of the 94 cities having a population of over 100,000, reporting in 1936, was valued at $11,084,918,000, or $443 per capita, according to a report released last month by Director William L. Austin of the Bureau of the Census, Department of Commerce. Of this total, $7,912,985,000, or 71.4 per cent, was publicly owned, and the remainder, $3,171,933,000, or 28.6 per cent, privately owned.

The assessed value of taxable real property in these same cities, in 1936, was $39,188,570,000, or $1,567 per capita. The value of the combined total of all real property, both assessed and exempt, therefore, was $50,273,488,000, of which exempt property comprised 22.04 per cent.*

Exemption from general taxation, in addition to that for Federal, state and local government owned and used properties, is found to be granted commonly to properties used for private education, religious and charitable purposes, and also to properties of fraternal and social organizations, cemeteries, homesteads, housing, slum clearance, publicly owned utilities lying within other governmental divisions, and privately owned railroad and other public utilities which are exempt on the assessment rolls of the city because they are assessed and taxed by the state on other than an ad valorem basis.

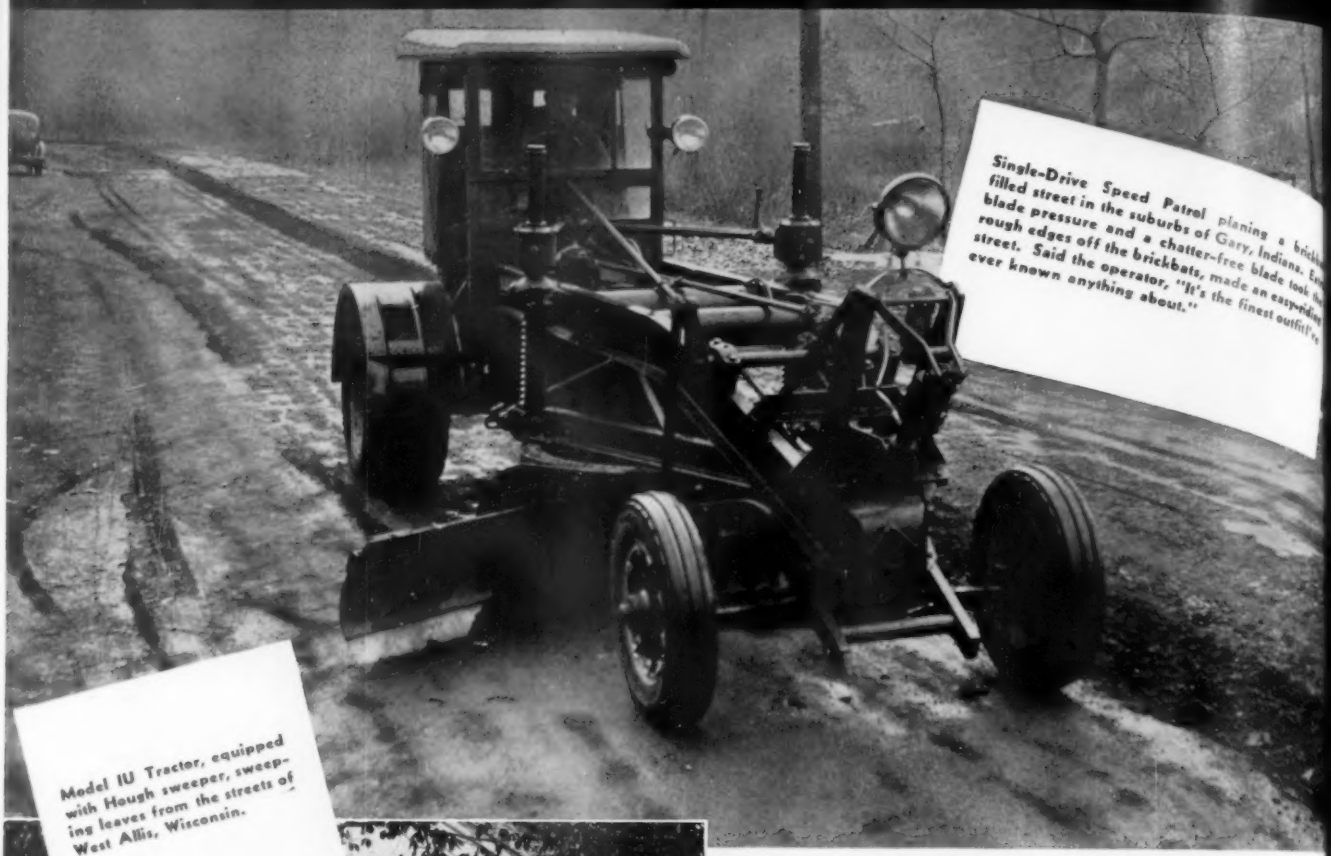
The value of exempt property was reported separately for publicly owned property by the various levels of government owning same, and for privately owned property by the major types of use, in each of the cities for which the data were available. The accompanying table shows the value of exempt real property, by the general classes of publicly owned and privately owned, and major types within each of these two classes. A release obtainable from the Bureau of the Census gives the figures for each of the 52 cities covered by this summary:

Publicly owned:	
Federal	$1,078,809,000
State	414,577,000
County	153,195,000
City	5,898,769,000
School district	297,207,000
Other governmental units	70,428,000
Total	$7,912,985,000
Privately owned:	
Educational	$ 777,292,000
Religious	1,188,279,000
Charitable	564,954,000
All other†	641,408,000
Total	$3,171,933,000

* The basis of evaluating exempt property in any city may not be the same as that used in assessing property for general tax purposes. Exempt property may be valued at true or full cash value, whereas taxable real property, which includes land and improvements to land, by statute or practice may be assessed at a stated percentage of cash value. No adjustment has been made in the reported value of either exempt or assessed property in the accompanying table on account of such possible varying bases of valuation, except in the case of Seattle. For this reason the reported ratio of exempt property value to that of combined value of exempt and assessed real property is of limited value, and the basis of assessment in each city should be given consideration in reading the table.

† Includes fraternal and social organizations and cemeteries.

HOW ARE YOUR CITY'S SIDE STREETS



Single-Drive Speed Patrol planing a brick-filled street in the suburbs of Gary, Indiana. Easy blade pressure and a chatter-free blade took the rough edges off the brickbats, made an easy-riding street. Said the operator, "It's the finest outfit I've ever known anything about."

Model IU Tractor, equipped with Hough sweeper, sweeping leaves from the streets of West Allis, Wisconsin.

Are your city's side streets easy on the family auto they hinder or help the grocer and milkman making d ies? Are they clean so no dust clouds roll in on house You can put side street residents—your city's largest of taxpayers—on clean, easy-riding streets at very lo Here's how: Plane off hard, car-shaking bumps, mak side streets boulevard-smooth with an Allis-Chalmers Patrol. Once smoothed, an Allis-Chalmers Wheel T equipped with a broom will sweep those streets free o leaves and other litter. And when winter comes Tractor or Speed Patrol will make short work of sn moval, thus keeping your streets clean and easy ridi year 'round . . . at low costs that make smooth sail both you and the taxpayer. Ask your Allis-Chalmers

Gasoline and Controlled Ignition Oil Track-Type Tractors from 32 to 80 Drawbar H. P. . . . Tandem and Single Drive Speed Patrols . . . Drawn Blade Graders . . . Industrial Wheel Tractors . . . Stationary Power Units from 31 to 102 Brake H.P. . . . two, four and six-wheel scrapers, bulldozers, trailbuilders, loaders, winches and other allied equipment.

ALLIS-CHALMERS

TRACTOR DIVISION—MILWAUKEE, U. S. A.

VALLEY VIEW HOSPITAL, ADA, OKLAHOMA

Hospitals for Small Communities

FACILITIES for medical care and hospitalization are far from uniform throughout this country. In our large cities we have great hospitals, equipped with the latest devices for good and efficient work, while in many rural areas there may not be a hospital within 100 miles or more, and even then the equipment may be woefully out of date. The Commonwealth Fund, which was established in 1918 by a gift from the late Mrs. Stephen V. Harkness, has taken a deep interest in this problem. Since the Division of Rural Hospitals was inaugurated in 1926, the Fund has made ten awards to aid the financing of new hospitals, eight of which are already in operation. Awards are based on a careful study of the community in relation to the several aims of the program. First of all, the rural community is defined as an area having a radius of 25 to 35 miles around the logical center for a hospital, in which there is no urban community with a population of more than 15,000. Then the eligibility of any such community is judged by:

1. The need of hospital facilities.
2. The ability and willingness of the community to undertake the necessary financial program.
3. The character of the local leadership, both lay and professional, the degree of general local interest in the proposal, and satisfactory guarantees of community and professional cooperation.

Experience has shown that one bed per 1,000 population provides sufficient capacity, and hospitals of approximately 50 beds each have been built by the Fund as adequate for their chosen areas, areas where they practically start from scratch in the provision of hospital facilities. To judge the ability and willingness of the community to undertake its share of the financial program, the Fund studies all available economic, population, geographic and other data, and pays a visit to the promising ones to estimate the general community interest and the influence of those most closely concerned in the project. The attitude of the local medical group, for example, is a very important factor. The financial undertaking by the community involves a minimum of $40,000 for capital purposes and the provision of a suitable site with water lines, sewers, and electricity brought to the site line. The local contribution is set above $40,000 according to the financial ability of the community and the size of the hospital selected. In addition to these costs, the community must be prepared to pay the financial campaign expenses and undertake full responsibility for the financial operation of the institution under standards specified and agreed upon. Since the service of these hospitals must be community-wide, regardless of color, race, creed or economic status of the patients, the community must be able to set aside from $10,000 to $15,000 yearly to meet the deficit incurred by giving free care up to 25 per cent of the total. The Fund has in several areas aided or encouraged the inauguration of "contributory" and "periodic prepayment" plans under which residents of the area served pay definite amounts to the hospital periodically in anticipation of the need for hospital services.

For its part, the Commonwealth Fund agrees to contribute from $200,000 to $275,000, as needed, for capital purposes, and to furnish the architectural plans and architectural supervision of construction in addition. Also, after the hospital is built, the Fund is willing to provide a number of fellowships for interested doctors and other hospital personnel to encourage the best possible quality of service.

The procedure of application and organization by the local community is as follows. Any community which feels itself eligible may correspond with the Fund, culminating in the filing of a formal application containing required data. If on the basis of this information the Fund decides upon a field study, and if the field study shows the community to be the most satisfactory of the eligible areas, a notice of selection is sent to the community in question and a formal contract is drawn up. In order that the contract may be binding, a local non-profit association must be formed and incorporated for the purpose of building and operating the proposed institution. This association, in turn, elects the board of trustees, which must be composed of laymen in order to insure real community interest and control of the institution. The contract drawn up by the Fund and the association specifies the financial arrangements in detail. As payments on building contracts and for equipment fall due, the local corporation and the Fund will make deposits in a joint bank account established in a local bank in amounts proportionate to their relative financial obligations under the agreement.

The plans for construction of the buildings are furnished by the Fund, but the building contract, subject to the approval of the Fund, as well as purchases of equip-

Now! EVERY COMMUNITY CAN HAVE SAFE CLEAN STREETS *at a New Low Cost*

with the New Patrol Sweeper

● Low in first cost . . . inexpensive to operate . . . yet so fast and thorough that it can sweep as many miles of "litter lane" per hour as larger, more costly sweepers . . . the new Austin-Western makes modern machine sweeping economically sound anywhere.

Here's a sweeper so easy on the taxpayers' pocket-book that streets in outlying neighborhoods can be cleaned frequently . . . kept as safe and attractive as big city boulevards. In fact, because of its small size and maneuverability, the Patrol Sweeper also makes machine sweeping practical and economical for factories, warehouses, piers, railway terminals and other enclosed or congested areas.

Compactness, quick-dumping and nimble speed are distinctive features of the A-W Patrol Sweeper that contribute to its low cost performance. Because it steers and handles as easily as a light truck . . . and provides full visibility from the seat . . . operation is easy and safe. The work, pedestrians, or traffic are never obscured. Exceptional ability to clean gutters thoroughly, sweep close to the front and rear of parked cars, operate on narrow streets, alleys and short radius curves are additional important time- and cost-saving A-W Patrol Sweeper advantages. Write for details on the new A-W Patrol Sweeper's mechanical and operating innovations and proof that they solve your city's problem of maintaining safe, clean streets at low cost.

This picture of a Patrol Sweeper making a figure eight crosswise on a 36' street illustrates its exceptional maneuverability.

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City _____ MS-843

ment, are made on the responsibility of the local hospital corporation. The hospital plant will consist of a hospital building of from 25- to 50-bed capacity and a separate residence for nurses and personnel, of first-class fireproof construction. A wide range of hospital activities will be provided, a clinical laboratory, X-ray and out-patient departments being included.

So far, eight hospitals have been completed by the Fund: in Rutherford County, Tenn.; Farmville, Va.; Glasgow, Ky.; Farmington, Maine; Beloit, Kans.; Wauseon, Ohio; Kingsport, Tenn.; and Tupelo, Miss. Another, in Ada, Okla., is almost complete, and a tenth in Provo, Utah, is in the planning stage. They are all community hospitals in the highest sense, owned by the community and run by the community for every person in the community. The staff is open to all local physicians, to give them the best opportunity for serving their own patients with the best possible equipment. The patient is safeguarded, however, by board regulations that certain kinds of work, particularly major surgery, may be performed only by those physicians who have reached certain standards of experience and competence. The Fund believes that community responsibility and community-wide service, with an educational bias for both the public and the medical profession, are of basic importance, and that where these can be developed, an adequate hospital plant is a good investment for the community.

COMMUNITY HOSPITAL, RUTHERFORD COUNTY, TENN.

Population Density in Central Berlin to Be Reduced to 60 Per Acre

THE following account of the great new scheme for the replanning of Berlin, which appears in the *Journal of the Town Planning Institute* of Great Britain for April, 1938, suggests the importance of the perfection by democracies, of legal sanctions and methods of finance whereby they can compete with the totalitarian states in the replanning of their cities.

The scheme, which was described and illustrated in the *Volkischer Beobachter* of January 28, 1938, was prepared, in collaboration with Stadtrat Niemayer, by Professor Speer, who is engaged with the Führer in replanning also the cities of Hamburg, Munich and Nuremberg. The *Journal* indicates the very ambitious scale of the plan:

In the center it provides for the destruction of four of the existing railway stations, and the building of two new stations joined by a triumphal way from south to north through the middle of Berlin, along which new squares of immense area, new ministries, restaurants, cinemas and shops are to be grouped. The main Southern Station will be close to the new Tempelhof airport and will have an enormous square in front of it for the building of hotels and offices; from this point the new Via Triumphalis will lead northwards, largely on land at present occupied by railway sidings, to a square over 200 yards in diameter, round which will be built, on a uniform plan, a new head office for the tourist trade (with a congress hall for 1,600 persons), an office for the Allianz insurance company, a huge cinema and other buildings. Slightly further to the north, where the new street enters the Tiergarten, will be built the new Ministry of War; the street will then cross the main east-to-west axis from Unter den Linden to the Reichssportfeld (the breadth of this street is at present being doubled, and it apparently will pass under the new triumphal way through a tunnel) and reach its climax at the Königsplatz, in front of the Reichstag, which is to be cleared in order to accommodate demonstrations of up to one million people, and adorned by a gigantic assembly hall. Behind this assembly hall, and separated from it by the Spree (the banks of which will be cleared and turned into public gardens) and an artificial basin measuring 1,200 yards by 500 yards, will be the new Northern Station. It will be surrounded by further new buildings, including a new police headquarters, and the headquarters of the National Socialist Relief Organization.

Preparations are already in an advanced stage, much of the land has already been acquired, and the necessary technical scheme for the railway modification is already complete. Work was to begin on the Central Square on June 1; the Southern Stations will be opened in 1945 and the Northern Station in 1948. The proposal is that the whole of this great central organization shall be completed by 1950.

This central redevelopment is only part of the whole plan. The central cross formed by the north-south axis and east-west axis, which will be prolonged to reach the Autobahn-ring round the outer periphery of Greater Berlin and which will thus have a length of 38 and 50 kilometers (23¾ and 31¼ miles) respectively, will also form the center of four concentric circular roads through the outer town and inner and outer suburbs. A fifth Autobahn will lead from the ring inwards to the Exhibition grounds along the line of the "Avus" racing track. There will also be two new underground railways parallel to the two traffic axes (the Zoo and Friedrichstrasse stations will also deal exclusively with the suburban service of the District Railway), and in the west of Berlin will be built a new educational center comprising university and technical high school institutes, situated in the Grunewald and adjacent to the Reichssportfeld. The foundation stone was laid in December last and these buildings are to be completed in 1945. The other suburbs, opened up by the new roads and underground railways, will be the scene of the planned building of flats and houses for 20,000 families annually, many of which will be forced out from the center by the taking over of so much space for new Government buildings, triumphal ways, etc. It is intended that the density of population in central Berlin, at present 400 persons per hectare (162 per acre), would be reduced to 150 per hectare (60 per acre).

Advertising Government Jobs

Placards on city-owned street cars have proved an effective method of advertising vacancies in the Police Department of Phoenix, Ariz., and of insuring adequate competition in the civil service examination for the openings, the International City Managers' Association reports. The Arkansas' State Personnel Division used newspaper and radio advertisements to recruit candidates for civil service employment, when the system was inaugurated a year ago.

—TRINIDAD CAN TAKE IT!

Broad Street, Columbus, Ohio, paved in 1906 with 33,719 square yards of Trinidad Sheet Asphalt, has been maintained at the rate of $.0134 per square yard per year.

DAY and night an endless train of motor cars and trucks rolls over America's highways . . . through every city, town and hamlet. Never before have there been so many. And never before has there been so great a demand for serviceable pavements.

Trinidad Native Lake Asphalt was used for paving long before the automobile came into its own. Hundreds of these original pavements are still in excellent condition, with unequaled service record.

The reason for this outstanding performance is that Trinidad Native Lake Asphalt ideally suits the most exacting highway requirements. It possesses the resiliency to withstand the shocks of heavy traffic. It contains a colloidally dispersed mineral filler which contributes greatly to its serviceability. It is absolutely uniform in quality.

Highway engineers interested in low-cost-per-square-yard-per-year paving are invited to learn the full facts about Trinidad Native Lake Asphalt. Clip and mail the coupon below, pinned to your letterhead, checking the Barber Asphalt Paving Products you're most interested in.

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- ☐ **BARBER BRAND WINTER COLD PATCH** — A cut-back asphalt for use in patching and maintenance work in cold weather.
- ☐ **GENASCO BLOCK AND JOINT FILLER** — For brick, granite block and concrete highways.

Sewage Sludge Pumps—Their Care and Lubrication

By A. S. MARLOW
Marlow Pumps, Ridgewood, N. J.

THE sludge pump as manufactured in the United States today is an extremely rugged, serviceable, and generally trouble-proof piece of equipment. It will pump primary sludge in a sewage-disposal plant, secondary sludge, and many industrial sludges, with complete success. Little attention is required in order to get good service, but if this little attention be omitted, the service obtained will, in many cases, not come up to expectations.

There are three special requirements in order to obtain satisfactory service: (1) proper lubrication; (2) attention to packing; (3) cleanliness.

Lubrication

Under the first heading—proper lubrication, little attention will be required by the electric motor, particularly if it is of the ball-bearing type. Ball bearings should be cleaned about once a year by flushing with a light mineral oil; the bearings should then be refilled with a light grease. Make a note on your calendar to do this immediately after January 1. Do not use too much grease; excess grease in the bearings will cause heating. If bearings are of the sleeve type, they should be lubricated on the first and fifteenth of the month with a little light high-grade machine oil. See lubrication instruction on motor plate.

Lubrication of the pump itself is generally limited to the crankshaft bearings, gearing, and plunger. The bottom of the plunger should be filled with good machine oil, just enough to cover the crosshead bearing. Crankshaft bearings should be lubricated with grease, if equipped with grease-cups; these grease-cups should be given one turn after each ten hours of operation. Alemite, or similar fittings, should be greased after every five hours of operation; more often if any tendency to heat is noticed.

The lubricant in the gear case should be kept to the level of the overflow on the bottom of the gear case; this applying to pumps where gearing is integral with the pump. Gulf Lube-cote is an excellent oil for this purpose. This gearing need be checked only every two or three months. Where gearing is integral with the motor, follow instructions given on the motor and check lubrication at least every two weeks, say on the 1st and the 15th.

Where the eccentric is lubricated by means of an oil cup, adjust this to drip one drop per minute; use a high-grade machine or automobile oil.

Care of Packing

Packing should not be drawn up too tightly, but just enough to prevent leaking of sludge. The groove around the outside of the plunger at the gland should be occasionally filled with automobile oil.

Some pumps are fitted with oil cups to supply oil around the plunger. Frequently, sludge will clog the oil passages, and it will be necessary to clean these passages out once in a while. Some operators discontinue the use of the oil cups and, instead, apply oil with an oil can at intervals, and this seems to be a satisfactory way of taking care of this point.

When packing is to be replaced, it is probably best to follow the manufacturer's recommendations. The joints in the packing should be staggered; that is, if the first ring joins at the north, the next joint should be at the south, the next at the east, the next at the west, etc. In this way air and sludge leaks through the packing may be avoided.

Generally, when the gland is all the way down, it will only be necessary to add another ring of packing without removal of the packing then in the stuffing-box.

Cleanliness

Under the head of cleanliness will come general cleanliness, removal of leaking sludge, etc., and, most particularly, attention to the valves. New plants especially are subject to clogging of the valves due to pieces of wire, sticks, etc., left in the pipes, and the valves should be inspected periodically to see that they are free to operate properly.

At times trouble will not be detected by inspection of valves. A cement sack plus a lot of leaves and débris may lodge in the suction line and entirely stop the passage of sludge to the pump. This can generally be detected by noticing that the suction valves are seated very firmly and can be dislodged only by a crowbar or some other mechanical lever. The answer is of course to remove the obstruction from the suction line.

Summer Program in Planning

RECOGNIZING the need for a short summer course in planning for both technicians and laymen, the School of Architecture of the Massachusetts Institute of Technology, cooperating with the American Planning and Civic Association, with headquarters in Washington, D. C., is offering a three weeks' course in City and Regional Planning, commencing Tuesday, July 5, 1938.

The first series of lectures and discussions, given each morning from July 5 to July 15, inclusive, except Saturday, will be devoted to basic planning principles. The second series will consist of lectures and discussions on planning techniques and will be given each morning during the third week of the Program (July 18-22). The final series, given each afternoon except Saturday during the third week, will be devoted to planning administration.

Prospective participants in the Program should signify their intention of attending by writing to Prof. Frederick J. Adams, School of Architecture, Massachusetts Institute of Technology, Cambridge, Mass., or to Miss Harlean James, Executive Secretary, American Planning and Civic Association, 901 Union Trust Building, Washington, D. C. Applications must be received not later than July 1, 1938.

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BIG 6

OR SUBURBAN

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Whichever you choose, you are assured of satisfactory results with ANY South Bend Flusher, of capacity large or small. You are assured of a thorough job of removing from the pavement all types of street dirt, litter, leaves, etc. Cars parked along the curb do not impede the progress of a South Bend Flusher, because the nozzles throw the spray *under* the parked cars, cleaning the entire pavement.

For the small town or village—

the *Suburban* model is recommended as the most economical and satisfactory type of Street Flusher. Its moderate price places it within the reach of even the smallest towns and villages. This model is made in a range of capacities of from 600 to 2100 gallons.

The *Suburban* Flusher, with one nozzle, cleans a strip 14 feet wide; with two nozzles, 26 feet; and with three nozzles, 36 feet wide, in one operation . . . removing from the pavement the finest dust particles as well as the heaviest kind of street dirt and litter, and washing leaves, etc., into the gutter.

For the larger cities and towns—

the *South Bend "Big 6"* is effective and economical for cleaning all types of streets. It covers a wider range of capacities — 800 to 3,000 gallons — and cleans any width up to 42 feet. The *"Big 6,"* with one nozzle, cleans a strip 16 feet wide; two nozzles, 28 feet; and three nozzles, in one operation, a strip 42 feet wide.

Which booklet shall we send you — "SUBURBAN" or "BIG 6"?

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This Business of Local Transportation

With Some Flashes from New Jersey

DESPITE the revolutionary changes that have taken place in mass-transportation vehicles during the last twenty years, the change from insolvency to solvency has not taken place in the transit industry. Until it does take place, there will be great, though not insuperable, difficulty in the getting together of transit companies and city governments on a basis of genuine cooperation.

The fault, if any, is on both sides. The municipal governments, presumably representing the riding public, though in instances urged by personal motives, insist on improvements in facilities, which mean anything from scrapping the entire existing investment to putting on more buses and trolley coaches.

The operators, on the other hand, in most instances knowing that they simply cannot destroy the plant and equipment for which they are held responsible, frequently by distant owners, and knowing equally the high cost of replacing older vehicles with new ones, and the problematical increase in revenues therefrom, are inclined to be reluctant to initiate or enter into programs or negotiations leading to extensive modernization.

If a local transportation service is unsatisfactory, the things to find out are: (1) if it is economically run; (2) if it is carrying all the passengers it could possibly get; (3) if it is doing something to get more passengers. If it is doing these three things, but continues to be in difficulties, perhaps the fare is too low. But bear in mind that the company will refuse any fare increase which would cut patronage below present revenue. Public Service Coordinated Transport, for instance, operates its numerous local transportation services in New Jersey under a 5-cent fare in the face of terrific low-price automobile-taxicab competition everywhere. Here are some facts about this progressive company:

1. Indicative of economical operation, Public Service Coordinated Transport has only one operator or employee on a vehicle, irrespective of its size or type; purchases gasoline in bulk, stores it, and delivers it by own trucks where needed, and built all the bodies for street cars and buses until highly modern types of vehicles were evolved and produced economically in mass.

2. It is not carrying all the passengers there are, as long as putting new vehicles on a line can increase patronage 15 to 40 per cent. Population has been increasing in this territory during the last ten years, yet ten years ago Coordinated Transport was carrying 650 millions per year against 412 millions at present. That 31 per cent drop very closely reflects the competition which all city transportation systems must contend with. Most families now own automobiles, and many not only ride back and forth to work in them but use them as public carriers as well. The result is that the company must furnish a service which in price, speed and comfort will win many of these private-car riders. In addition to this large potential market, there are numerous thin-revenue routes which, through the provision of excellent service, have been developed and will still further develop into paying lines. These lines are actually opening up a densely populated region of many communities, increasing the flow of people and business among them, making more distant jobs available, making the better business centers in this large area appreciated and impelling the backward centers to modernize, and making real estate more interesting.

3. As to *doing* things, Coordinated Transport invented and insisted on having the All-Service vehicle which operates as a trolley coach where there are electric wires and, where the wires end, pulls down its poles and operates as a gasoline motor-bus; for years the company experimented with diesel engines until it made diesel-electric transportation practical and profitable; it has replaced street cars by motor-buses and in many instances has replaced motor-buses by electric coaches; has made thin-revenue routes, averaging as low as 14½ cents or three passengers per mile, pay by installing up-to-date vehicles which the public will patronize.

An entirely new point of view is needed toward the transit industry. The old and present one is that the company has secured possession of a bonanza and is making the most of it with little regard to the public.

Here is a new conception, based on the simple definitions of the two words *public* and *utility*.

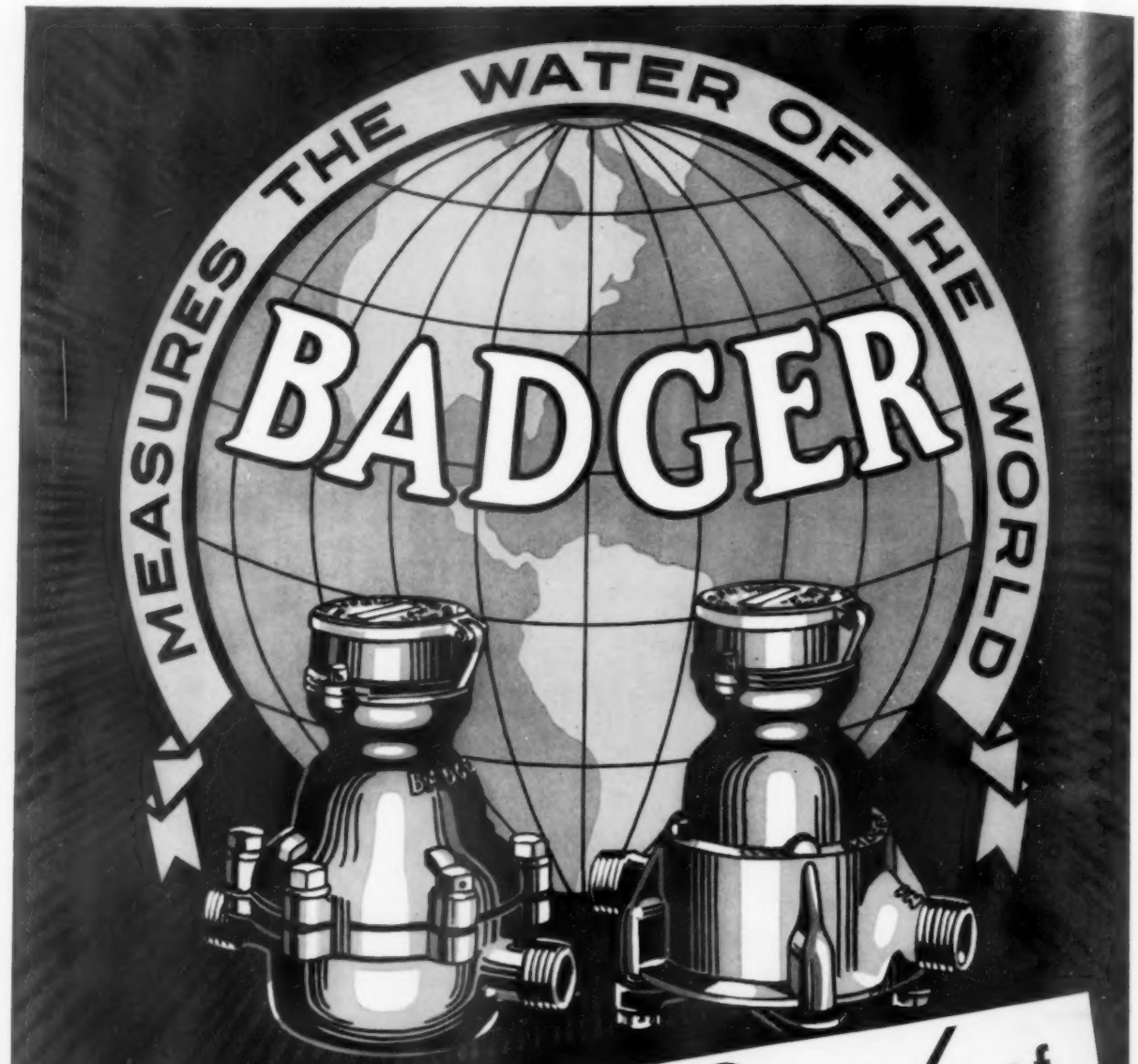
1. *Public.*—Of, pertaining to, or affecting the people at large or the community, as distinguished from private or personal.

2. *Utility.*—The quality, character, or state of being useful; fitness to supply the natural needs, or the quality of contributing to life, growth and progress; that serviceableness which is the basis of the value of a thing.

With this point of view honestly arrived at by city officials, chambers of commerce and other business and civic bodies, the newspapers, and the transit companies themselves, there need be no lobbying, fears, misunderstandings; and a basis for genuine cooperation will have been reached.

Sufficient frequency is the foundation of any successful transit system. People will forgive much if they can always get a coach without too long a wait. Given a sufficient number of vehicles, frequent service can easily be provided anywhere; but can it be paid for? Many vehicles mean much money expended and invested—and consequently collected. Frequent service, particularly at off peak, is expensive. Contrary to what seems to be a widespread public belief, there is a limit to the amount of money which can be expended by a transit company without at least an equal return.

In addition to having *enough* vehicles to render frequent service, these vehicles must travel at speeds which will make their use attractive, logical and inevitable. Com-



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fortable riding is a third element of expense. To meet these three requirements of good transportation necessitates a company's using at least as many as it can afford of the best vehicles obtainable, which usually means the newest.

The All-Service Vehicle

Public Service Coordinated Transport pioneered the All-Service Vehicle, which operates as an electric trolley coach where there are overhead electric wires and as a gas bus where there are no wires, because it means electric operation by which the company: (1) retains permanent franchises; (2) gives real substance to bonds by retaining a considerable portion of the electric plant and line equipment; (3) furnishes the riding public with the undoubted advantages of electric drive; (4) obtains more intensive use of these basically electric vehicles by having them available also for chartered bus service, using as many as 30 to 40 at a time for this service; (5) prevents a piling-up of cars and delayed service, in the event of a cable down, sleet on the wires, or a power failure, by transforming the trolley coach into a gas bus. The principal present reason for the broadening use of All-Service vehicles is that the riding public likes them. The All-Service vehicle is installed only where it will increase revenues 25 per cent or more.

The Small, Quick Bus

The city of Detroit operates more than 1,000 light 21-passenger buses, which have become the basic vehicle of that system. In New Jersey, on the other hand, the larger vehicles and especially electric-driven vehicles are used in the closely populated areas. But the 21-passenger transit-type coach is the ideal vehicle to use on thin-revenue lines, and spectacular increases in riding have followed the use of them on more than 35 formerly unprofitable routes in New Jersey. These sparsely-settled or suburban routes are bugbears to nearly every transit company, but they are exactly the routes which far-sighted municipal officials, city planners, chambers of commerce, and other business and civic organizations want to see developed.

What is cooperation? It is merely working together for a common result.

Transit operators want that kind of local transportation system which will produce the largest net revenue.

City officials want that kind of local transportation system which will cause the greatest public satisfaction.

Are these aims so very far apart?

Large revenue means either that the public must use the facilities however inadequate they may be, or that the facilities by their adequacy are attracting large patronage. In these days, a large revenue can usually be ascribed to the second cause. Transit operators the country over are striving to equip their lines to make them pay. On all hands they are urged to put on still better vehicles because the public likes them and that way lies the largest reward. Consequently, the whole trend of the transit industry is toward a service which by its excellence in every department will attract the largest number of riders and to a great extent supersede the automobile for routine travel.

PUBLIC VEHICLES OF TODAY

The All-Service coach at upper left can leave the wires and still be electric-driven; the 21-passenger bus at upper right maneuvers quickly and easily through traffic, and pays in the suburbs; the diesel electric buses below have done more than 2,000,000 miles of successful operation in New Jersey for Public Service Coordinated Transport, which now has 152 of them. General Motors built all the vehicles; General Electric furnished the electric equipment; Hercules Motors, the diesel engines

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As pipe lines grow older, the need for new free-working valves becomes greater and greater. The very age of the lines makes it far more likely that they may develop a fault. Then the necessity for local shut-offs will be imperative; but only local valves make them possible. Even if there are valves on the lines, it is more than likely that they are not in perfect working condition.

Smith Valve Inserting Machines make it economically possible, without danger, to insert new valves right into pipe lines, either water or gas, while they are furnishing service, without in the least interfering with the supply and without service users' being inconvenienced. These machines are furnished in five sizes: the smallest, for 4 in., 6 in. and 8 in. insertions; the largest, 30 in. insertions.

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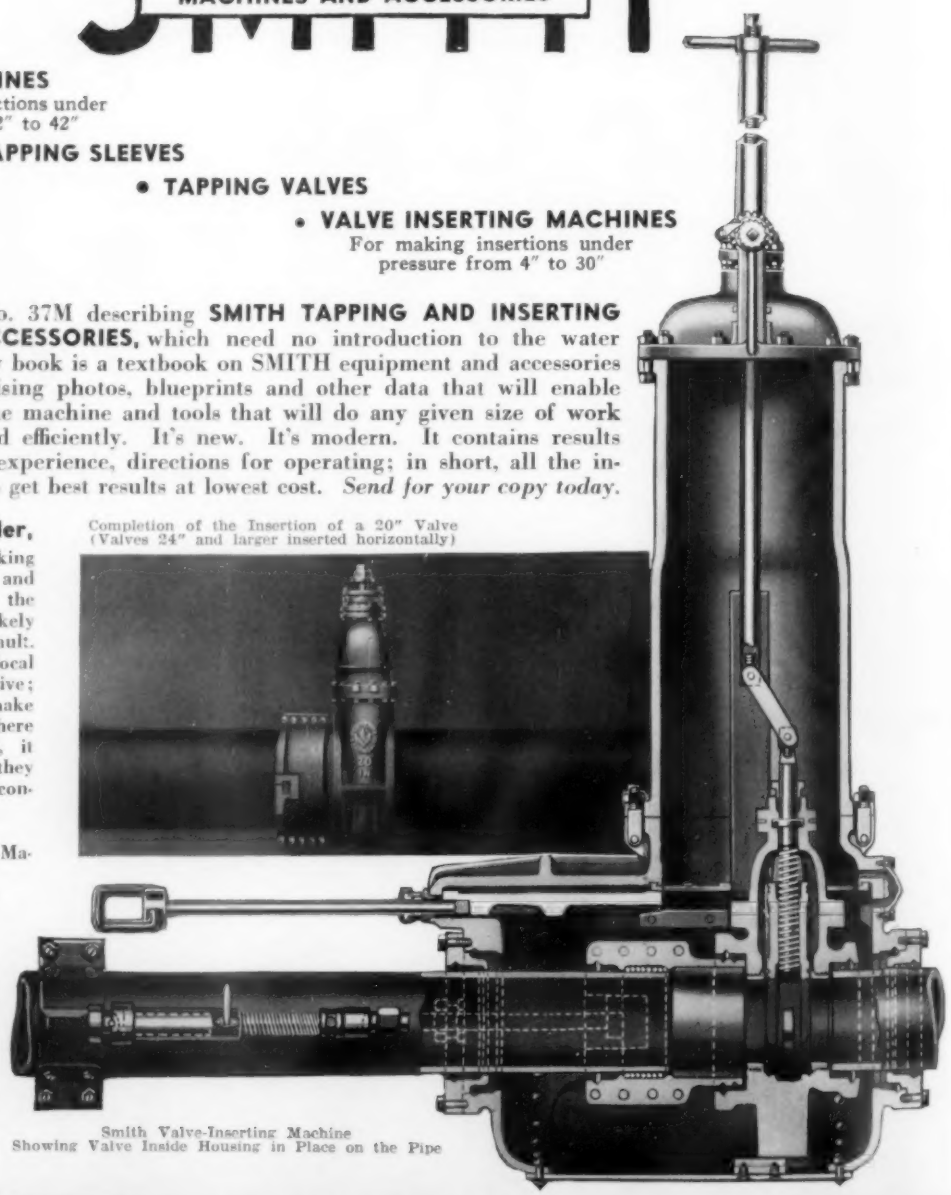

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When you write for that catalog, kindly mention THE AMERICAN CITY.

Men and Their Labor Are Too Precious to Be Wasted

Excerpts from "The Public Holds Its Nose"—a Discussion of Local and National Relief Problems—in The Survey Midmonthly *for May, 1938*

By SIDNEY HOLLANDER
Baltimore, Md.

WHAT is the situation today, with needs no less urgent and nearly as great as at the peak? After almost ten years of activity—part of it forward and part in reverse—we find ourselves with an uncertain program which has little acceptance and less support. . . . Throw the whole thing over? Too much danger in that; not for them, but for us. Consider what has happened in other lands when millions lacked bread, and hope. We can't risk that here, especially with that mounting number of young people emerging into a world that has no place for them—five hundred thousand and more each year. . . . Democracy has no great appeal for discouraged rebellious youth; for workless and hungry men.

The New Program Must Face Realities

There's only one way out. We'll have to go back and start over again, and it's not going to be as easy as it was at first. More resistances and resentments to overcome; people more hardboiled. Pretty phrases won't do; only facts, and reasons that carry conviction. But it can be done. We can have a sound program here with decent standards and good administration. We can get people to support it, but first we'll have to prove that it's worth what it costs. . . .

Now the word must go forth and go forth again, that we cannot and must not close our eyes to the threat of millions who lack security, who lack hope; that we must accept the challenge and be prepared to pay the costs, heavy though they may seem. We are paying them now, though we do not always identify the account on which the checks are drawn. We can postpone the program but that only means we'll be paying for it anyway without getting values in return. One way we build assets, the other liabilities.

This time we must offer the public an honest program, well planned and charted. It must be a program that faces realities, that recognizes the fact that people must eat, whether you list them as employables or unemployables; that they need clothes, whether they are married or single; that they must have a place of shelter, regardless of their color; that they suffer sickness and death even though they may be ineligible for relief. For ten years the mighty minds in both public and private welfare have been too concerned with great problems to face such simple facts. . . .

Any new program must be based on a clear delineation of function and acceptance of responsibility between public and private agencies on the one hand, and Federal, state and local divisions on the other. Perhaps Federal assistance and some measure of Federal control may be necessary throughout the program. The unhappy plight of those from whom the mantle of Washington was withdrawn as compared to those it still covers shows that "neighborliness" wilts beneath the onslaught of resentful taxpayers. Who believes that unemployment compensation, old age assistance or aid to dependent children could have reached present proportions without Federal support? With all their inadequacies, these services shine resplendent compared with local relief. The tragedy of unemployables unable to get relief, and of employables rejected by WPA, shows that "local autonomy" is but an empty phrase when used, not to accept local responsibility, but to evade it.

The minimum requirement of any public program should be to provide basic material needs. Even this minimum is not now being met. In many places standards are keyed to a level of chronic malnutrition; in others, whole categories are denied any assistance at all. Why delude ourselves with visions of programs of "opportunity for a complete life" when we are not yet dealing adequately with the problem of hunger?

I know that Federal participation begets problems of its own; but if our purpose is to afford real security and protection to the helpless, these difficulties are less to be feared than indifference and neglect.

The bedrock of the program must be that society cannot avoid responsibility for those whom it maims or rejects nor for those it leaves jobless. All of them; not just part of them, as now. We have reached the point where we admit that mothers can do a better job than institutions. We reject almshouses as an unworthy end for the aged. We support the blind and the crippled, but we gag at responsibility for those whose muscles are still strong and whose powers are still vigorous. If men are stricken physically, we hospitalize them; if they are stricken mentally, we institutionalize them; but if they are stricken "employably" we kick them around from pillar to post in a vain attempt to pass the buck.

The Potentialities of Our Unused Manpower

America needs a fresh slant on the whole program. Most of all, it needs to wake up to the vast potentialities in its unused manpower. Here is a veritable Genie, ready to shower on the nation things everybody wants and needs, more abundantly than would otherwise be possible. We have been conditioned to the idea that labor is effectively

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The Mueller Brass Co., Port Huron, Michigan were the first to originate Copper Service Pipe in America. This product has always been made by this Company at Port Huron, Michigan. For identification purposes the pipe is marked every few inches throughout its length as illustrated here.

TYPE M PIPE IS MOST GENERALLY USED FOR CONSTRUCTION PURPOSES; TYPE K FOR WATER SERVICE WORK.

● When your plans call for pipe and fittings on new work, remodeling city projects or for water service lines, investigate STREAMLINE Copper Pipe and Solder Fittings before you decide.

STREAMLINE compares very favorably in cost with ferrous pipe, yet, with the exception of abnormal soil and water conditions, it never has to be replaced due to rust or clogging. The pipe joint is actually the strongest point in the line—constant vibration, resettlement of the fill, etc., has no effect upon it.

STREAMLINE Service Pipe (Type K) is the original copper service pipe, and the first to be produced in America for water service work. It is the most uniformly soft and pliable pipe possible to obtain—it is kept that way through the use of the best copper obtainable for the purpose and through strict laboratory control through every phase of its manufacture.

STREAMLINE Fittings and Type K Copper Pipe are the ideal materials for water works use; for many applications in filtration plants; in aeration lines and in heating coils using the sludge digestion system in sewage disposal plants—and for all general plumbing and heating purposes.

COPPER PIPE PLUS BRONZE SOLDER FITTINGS PRODUCE THE

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employed only when its products bring monetary gain. Ridiculous! Labor is no less usefully employed when producing goods or services that society needs even though such products cannot be sold. Some dividends cannot be cashed at the bank. Suppose the ten or twelve million unemployed men and women could by some miracle suddenly be placed on the payrolls of factories making paper chrysanthemums or beaded lampshades which somebody could be persuaded to buy, would there be any to deplore the squandering of labor on the one side or the frittering of income on the other? "Increased production means gain in national wealth." Haven't we all heard it a thousand times? But suggest that these same ten or twelve millions be put to work building schools, roads, sewers, or low-cost housing; "The national income is being squandered." Use them for teaching, for servicing libraries or playgrounds, for beautifying public buildings; "We're headed for bankruptcy." Let them provide recreation through theaters, or orchestras, or dance-halls; "Pampering the inefficient." What a cockeyed world!

Let's start fresh. Let's view labor and the men behind labor as a joint asset of the nation and industry, to be drawn on according to needs. When industry is active, we must yield to its more pressing demands. When it slackens, that is the time to borrow some of its workers to make up arrears in public structures and services. Men and their labor are too precious to be wasted. Every unit can be used to increase national wealth. Take roads as one of the simplest examples. Every mile built benefits the whole nation, not just those who traverse it. It cuts the cost of distributing the products that roll over it. It increases the usefulness of automobiles and enlarges the market for them. It stimulates employment both in factories that make cars and in those industries that supply the materials. It makes countless jobs for chauffeurs, gas-station attendants, oil refiners, workers in tire factories, hot-dog venders, scenic desecrators, cooks and waiters in vacation resorts hundreds of miles away. So does every useful public project add to the welfare, the comfort or the protection of us all. We can use many more great dams and bridges, and a limitless number of schools, hospitals, playgrounds, theaters, libraries and training schools. Yes, and prisons, too, unfortunately.

A Subsidy for Employment

One way or another we can and must provide work for all who can labor, just as we must provide support for those who cannot. Not easy to organize; not cheap to maintain; not a panacea; but better than spending eleven billion dollars and getting only a national headache. The country can be sold on such a program if there's leadership, direction and unity behind it.

We must try to prove to America that there's more than a dollar return for every dollar the plan would cost. Strip it of emotional appeal if you will; admit frankly that it's a subsidy, a subvention for national defense, like battleships and tanks. Social security is the essence of national security. We're enlarging our program for an army and navy to ward off a danger from without, perhaps less menacing than the danger from within. The subsidy for social welfare may have to be increased. We are paying subsidies now for this and that and everything else. We started our railroads that way. Industry is subsidized by tariffs; farmers by soil conservation payments. We subsidize our merchant marine and our air lines. We subsidize veterans who fought, and those who came no nearer a battle line than Jersey City. We subsidize state universities, public health, Indians. Our whole economic system rests on this public participation. A subsidy for employment—not unemployment—would provide increased purchasing power for the products of industry and agriculture. Our foreign markets have been lost and the domestic markets not expanded to take up the slack; nor can they be, with millions out of work and millions more with bare subsistence incomes. The average per capita income of the country last year was just above $500; some areas were below $400, in nine states less than $300, and remember that these averages include the Rockefellers, the Morgans, the Mellons, and the rest of the "60." Until increased incomes provide greater mass purchasing power, our factories will continue on part time and workers must remain idle. Public works and public services that would provide employment for all who can labor may stimulate a demand that would restore industry to greater operation again. Many trace the present depression to the slackening of Federal expenditures last year. America now is a twelve-cylinder car with four cut out—a drag on the rest. The whole country, except Washington, is running on part time. Sharing work isn't the answer; increasing work may be.

Perhaps we might make acceptance of the program easier by the simple device of a change in our national bookkeeping. Since balancing the budget has become our great fetish, why not keep our public books as private books are kept? Instead of charging permanent improvements such as dams, post-offices, roads and hospitals to operating expenses, let the Government set them up as "Plant and Equipment" just as private industry does. Treat them as assets instead of liabilities, for such they are. Perhaps such a simple change in our bookkeeping methods might end this bugaboo, and cure the insomnia of some of our business Jeremiahs.

Summer Course for Public Health Workers and Sanitation Officers

TEXAS TECHNOLOGICAL COLLEGE has announced its First Annual Summer Course for Public Health Workers and Sanitation Officers, scheduled from June 9 to August 25, 1938, to be given in cooperation with the Texas State Department of Health and the Vocational Division of the Texas State Department of Education. It will consist of lectures, laboratory exercises and demonstrations, and field inspection work. The instructors will be members of the teaching staff of the Texas Technological College, visiting lecturers from the United States Public Health Service and the Texas State Department of Health, and other lecturers who are engaged in public health work.

Persons successfully completing the entire course and the subsequent examinations will be awarded a certificate of completion duly signed by Texas Technological College and Texas State Board of Health officials. This certificate will be recognized by the Texas State Health Department.

No tuition is charged, but registration fees will amount to approximately $25. Board and room will be available at from $75 to $100 for the season.

For further information or to make reservations write to O. V. Adams, Dean of Engineering, Texas Technological College, Lubbock, Texas.

TREE ROOTS

Won't Clog an *Armco Sewer*

• Because of its strong, tightly connected joints and non-porous walls, Asbestos Bonded Armco Sewer Pipe definitely eliminates stoppage from tree roots. And since this modern type of pipe has the ability to distribute loads uniformly around its circumference, it provides a wide margin of safety against structural breakdown. Besides these advantages, Asbestos Bonded Armco Sewer Pipe gives you this 3-way guarantee of long material life: (1) A galvanized, rust resisting base metal proved by 31 years of sanitary and combined sewer service; (2) a special bituminous pavement and coating used successfully for 13 years; and (3) an asbestos bond that keeps this bituminous protection permanently on the pipe.

You'll find complete, useful information about Asbestos Bonded Armco Sewer Pipe in the new 48-page Armco sewer book. A postal card or letter will bring your copy promptly and without obligation. Address: Armco Culvert Manufacturers Association, Middletown, O.

ARMCO

Asbestos Bonded

ARMCO SEWER PIPE

A PRODUCT ORIGINATED AND DEVELOPED BY ARMCO ENGINEERS

Mention THE AMERICAN CITY—it helps.

Utilities Owned by 849 Small Municipalities

Data for places of 5,000 to 10,000 population from the 1938 Municipal Year Book, published by the International City Managers' Association.

Utilities owned and operated are indicated as follows: "A," airport; "Ab," abattoir; "C," cemeteries; "E," electric light plant; "Ed," electric distribution system; "G," gas plant; "Gd," gas distribution system; "M," public market; "P," port facilities; "R," street railway; "S," sewage-disposal plant; "W," water works; dots (.....), no information received.

Alabama

Andalusia	None
Eufaula	WCAbA
Homewood	None
Jasper	None
Lanette	ESWCA
Opelika	EdWC
Sheffield	EdWPC
Talladega	W
Tarrant City	None
Troy	EdGWC

Arizona

Bisbee	C
Douglas	SW
Globe	SWC
Miami	S
Nogales	SW
Prescott	SW

Arkansas

Camden	None
Conway	ESWA
Fayetteville	SWA
Helena	None
Hope	ESWC
Malvern	SC
Paragould	WCA
Russellville	SA
Van Buren	W

California

Albany	None
Arcadia	W
Bell	None
Calexico	WA
Chico	SA
Colton	EdSWC
Corona	S
Coronado	None
Culver City	None
Daly City	W
El Centro	W
Hanford	A
Hawthorne	W
Hayward	W
Lodi	ESW
Lynwood	W
Martinez	W
Marysville	CA
Maywood	None
Merced	None
Montebello	None
Monterey	PC
Monterey Park	SW
Napa	SWP
National City	None
Orange	W
Oxnard	SW
Pacific Grove	None
Petaluma	S
Piedmont	None
Pittsburg	W
Portesville	SW
Redondo Beach	None
Redwood City	WP
Roseville	ESW
San Fernando	SW
San Gabriel	None
San Luis Obispo	SW
San Rafael	S
Santa Clara	EdSWC
Santa Maria	SW
Santa Paula	None
South San Francisco	None
Torrance	W
Tulare	SW
Visalia	SCA
Watsonville	SW
Woodland	W

Colorado

Alamosa	WCA
Canon City	WC
Durango	WC
Englewood	None
La Junta	SWC
Longmont	EW
Loveland	EWC
Salida	W
Sterling	SWA
Walsenburg	W

Connecticut

Putnam	SW
Rockville	S
Southington	SW
Winsted	WC

Florida

Bartow	ESWCA
Bradenton	WPA
Clearwater	GSW
Coral Gables	None
De Land	SWA
Fort Lauderdale	SW
Fort Myers	GWCA
Lake Worth	ESWC
Miami Beach	SW
Ocala	EdW
Palatka	W
Panama City	WPCA
Plant City	GSWMCA
River Junction	ESW
Sarasota	WPC
So. Jacksonville	ESWPA
Winter Haven	None

Georgia

Americus	WCAb
Bainbridge	SWC
Carrollton	WC
Cartersville	EdGWCA
Cedartown	SWC
College Park	ESW
Cordele	WCAbA
Dalton	EdGWC
Dublin	W
East Point	ESW
Fitzgerald	ESWCA
Gainesville	SWCA
Marietta	ESWC
Milledgeville	WC
Moultrie	EdWC
Newman	EdSWC

Idaho

Coeur d' Alene	MCA
Idaho Falls	EWCA
Lewiston	WCA
Nampa	SWCA
Twin Falls	W

Illinois

Batavia	EdSWC
Beardstown	WC
Belvidere	SW
Benton	W
Carbondale	W
Charleston	WC
Clinton	WC
Collinsville	SW
DeKalb	W
Des Plaines	W
Dixon	SC
Downers Grove	W
Duquoin	SW
East Peoria	W
Edwardsville	S
Gillespie	SW
Glencoe	W
Glen Ellyn	SW
Herrin	None
Hinsdale	EW
Hoopeston	SWC
Johnston City	SC
Lake Forest	WC
Lawrenceville	None
Litchfield	SW
Lombard	W
Macomb	SWC
Madison	R
Marion	SC
Metropolis	EW
Monmouth	SWCA
Morris	W
Mount Carmel	WC
Murphysboro	C
Naperville	EdSW
Niles Center	None
Normal	W
North Chicago	W
Olney	SWCA
Pana	SW
Paris	SW
Peru	EWC
Pontiac	.....
River Forest	W
Riverside	W
St. Charles	EdSW
Savanna	W
Spring Valley	W
Summit	None
Taylorville	WC
Venice	None
Villa Park	.....
Wheaton	W
Wood River	W
Woodstock	ESW
Zion	W

Indiana

Auburn	EW
Bicknell	W
Bluffton	ESW
Brazil	SWC
Clinton	WC
Columbus	W
Decatur	EGdWC
Franklin	SC
Greensburg	W
Hartford City	W
Hobart	None
Kendallville	EW
Lebanon	SW
Linton	EGWC
Madison	WPCA
Mount Vernon	None
Plymouth	WC
Portland	EW
Princeton	S
Rushville	EW
Seymour	None
Sullivan	SCA
Valparaiso	WC
Wabash	.....
Warsaw	None
Washington	EW
West Lafayette	None

Iowa

Atlantic	EW
Cedar Falls	EGSWC
Centerville	S
Chariton	SWC
Charles City	W
Cherokee	WCA
Creston	SWC
Fairfield	SW
Oelwein	SW
Perry	WC
Red Oak	WC
Shenandoah	WC
Spencer	ESWMCA
Webster City	EGWC

Kansas

Abilene	SWP
Concordia	WC
Garden City	EdWCA
Great Bend	C
Iola	EGSWC
Junction City	SWC
Liberal	SWCA
McPherson	ESWC
Ottawa	ESWMC
Pratt	ESWCA
Wellington	ESWC
Winfield	EGdSWC

(*Continued on page 87*)

Kentucky

Bellevue	None
Catlettsburg	None
Corbin	EW
Danville	SWC
Dayton	None
Glasgow	SW
Hazard	W
Jenkins	None
Ludlow	SW
Madisonville	ESW
Mayfield	SCA
Maysville	None
Paris	EW
Richmond	GSW
Somerset	None
Winchester	None

Louisiana

Bastrop	SC
Crowley	S
Gretna	.....
Hammond	.....
Houma	ESWA
Minden	ESWC
Morgan City	EWPMC
New Iberia	None
Opelousas	ESWC
Plaquemine	ESW
West Monroe	SWC

Maine

Bath	W
Brewer	.....
Brunswick	WA
Calais	C
Gardiner	None
Old Town	C
Rockland	.....
Rumford Falls	None
Saco	None

Maryland

Cambridge	S
Frostburg	W
Takoma Park	None

Massachusetts

Abington	W
Amherst	C
Andover	SWC
Auburn	None
Barnstable	SA
Bridgewater	None
Canton	None
Concord	EdSWC
Dartmouth	None
Dracut	WC
Franklin	SW
Gt. Barrington	None
Hingham	Ed
Hudson	ESWC
Ipswich	EWPC
Lexington	None
Ludlow	C
Mansfield	EW
Marblehead	ESWC
Maynard	SWC
Middleborough	EGW
Millbury	C
Montague	.....
North Andover	W
Northbridge	C
Orange	SWC
Palmer	C
Randolph	W
Reading	EWC
Rockland	W
Somerset	W
South Hadley	E
Spencer	SWC
Stoughton	W
Uxbridge	W
Walpole	W
Ware	WC
Whitman	W
Winchendon	SWC

Michigan

Albion	W
Alma	SWMC
Berkley	W
Birmingham	W
Cadillac	SCA
Charlotte	SW
Coldwater	EWCA
Dowagiac	EWC
East Detroit	W
Gladstone	EdSW
Grand Haven	ESWC
Grosse Pointe	None
Hancock	W
Hastings	SW
Hillsdale	EWC
Ionia	W
Ishpeming	WC
Kingsford	W
Lapeer	W
Ludington	SWMC
Manistee	WMA
Manistique	WC
Marshall	ECA
Midland	WC
Mount Pleasant	WCA
Negaunee	EWC
Petoskey	ESW
Roseville	None
St. Clair Shores	W
St. Joseph	WC
Sturgis	ESW
Three Rivers	W

Minnesota

Bemidji	SW
Chisholm	WMC
Cloquet	W
Columbia Hts.	W
Crookston	None
Ely	ESWC
Eveleth	SWMCAb
Fairmont	ESW
Fergus Falls	EdSW
Hastings	W
International Falls	WP
Little Falls	WM
Moorhead	ESW
New Ulm	EWCA
Owatonna	EGW
Red Wing	WC
Stillwater	W
Willmar	ESW

Mississippi

Brookhaven	SWC
Corinth	EdSC
Tupelo	ESWCAbA
Yazoo City	ESWC

Missouri

Boonville	W
Brookfield	SWC
Carthage	ESWMA
Chillicothe	ESW
Clayton	None
Clinton	SC
De Soto	SWC
Fulton	EGSW
Kirksville	W
Kirkwood	EdSW
Marshall	ESW
Maryville	WC
Mexico	SCA
Nevada	None
Poplar Bluffs	EWC
Richmond Hts.	None
Sikeston	EWCA
Trenton	EWC
Warrensburg	None
Washington	WC
Webb City	None

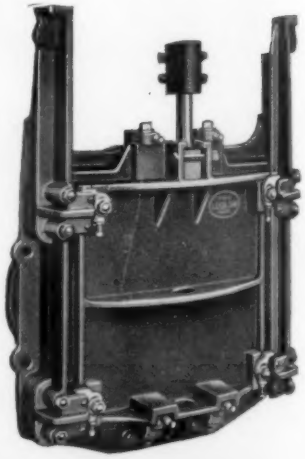
Montana

Bozeman	WC
Havre	WA
Kalispell	W

For Better CONTROL and CAPACITY Specify LUDLOW

When final costs are the first consideration, experienced engineers insist on Ludlow Valves. They know these valves will give dependable, year-after-year service under high pressures and punishing conditions without shut-downs for repairs or replacement. These valves have been repeatedly improved and simplified to the point where perfect seating, protection against leakage, and minimum wear are assured. They are available in both standard and special purpose types.

Ludlow Hydrants and Sluice Gates also get first call wherever longer, trouble-free service and reduced maintenance costs are demanded.



Send for complete information, specifications and estimates.

The LUDLOW VALVE MFG. CO.
TROY · NEW YORK

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New York	Chicago	Philadelphia	Boston	Kansas City	Houston, Texas	Pittsburgh
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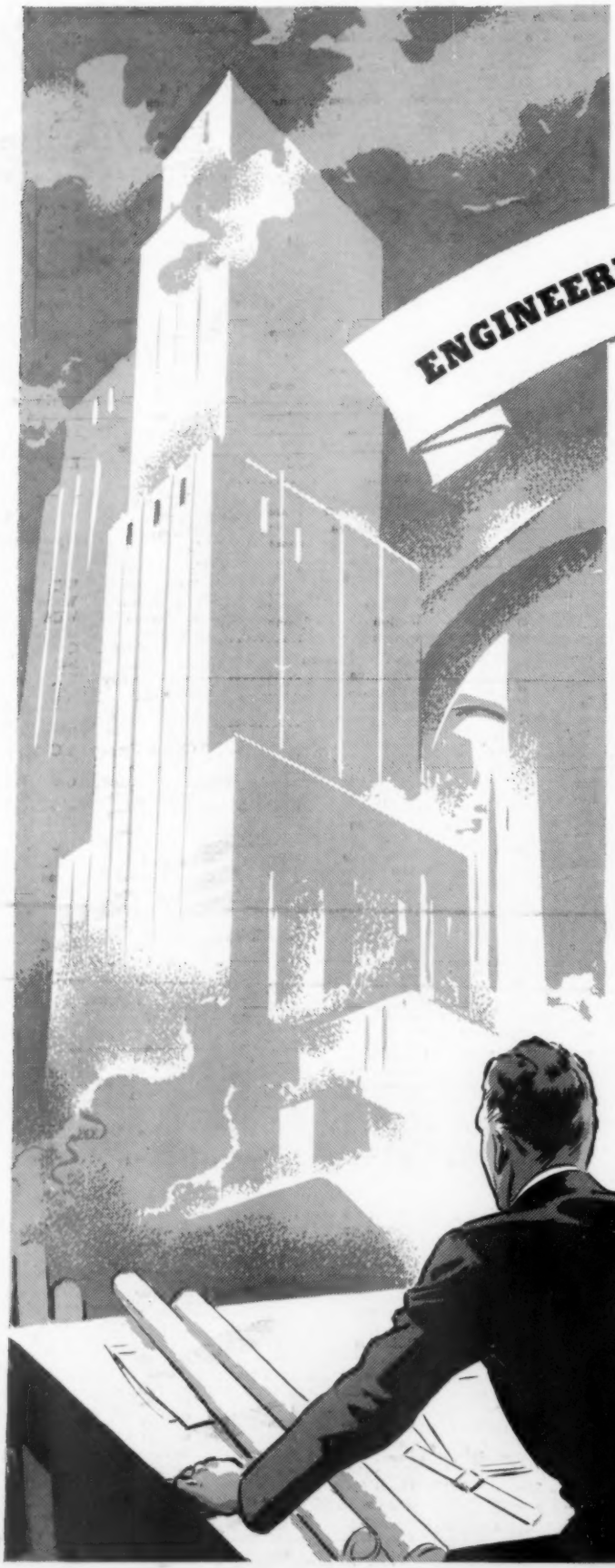
When you write for that catalog, kindly mention THE AMERICAN CITY.

(*Continued from page 85*)

Lewistown	WCA
Livingston	WC
Miles City	W
Nebraska	
Alliance	ESWCA
Columbus	SWC
Fairbury	EW
Fall City	EW
Kearney	WC
McCook	SWC
Nebraska City	C
Scottsbluff	WCA
York	S
Nevada	
Las Vegas	SC
New Hampshire	
Derry	W
Franklin	None
Lebanon	EWC
Somersworth	WC
New Jersey	
Audubon	S
Bergenfield	S
Bogota	None
Boonton	W
Bound Brook	None
Caldwell	SW
Carlstadt	None
Dumont	S
Dunellen	None
East Rutherford	S
Fair Lawn	W
Fairview	S
Fort Lee	None
Freehold	SWM
Glen Ridge	W
Guttenberg	None
Haddonfield	SW
Haddon Heights	S
Hammonton	SW
Hasbrouck Hts.	None
Highland Park	S
Leonia	S
Madison	EdSW
Manville	SWC
Metuchen	S
Newton	SW
No. Arlington	W
No. Plainfield	None
Ocean City	PA
Palisades Park	S
Paulsboro	GSW
Pennsgrove	None
Pitman	SW
Princeton	S
Prospect Park	None
Roselle Park	None
Salem	SW
Sayreville	S
Secaucus	None
Somerville	None
South Amboy	W
So. Plainfield	None
Tenafly	S
Ventnor	SW
Verona	S
Vineland	ESW
Wallington	W
Wildwood	SW
Woodbury	W
Wood Ridge	S
New Mexico	
Clovis	S
Gallup	WC
Las Cruces	GdSW
Raton	EWA
New York	
Bronxville	None
Canandaigua	SWC
Catskill	WC
Cedarhurst	S
Depew	None
Dobbs Ferry	None
East Rochester	SW
Elmira Heights	None
Fredonia	EdSW
Garden City	SW
Hastings	None
Haverstraw	S
Hudson Falls	None
Ilion	ESW
Lancaster	SC
Larchmont	W
Long Beach	SW
Malone	SW
Mechanicville	W
Medina	W
Mineola	W
Mount Kisco	W
Newark	SW
No. Tarrytown	None
Norwich	None
Nyack	W
Patchogue	S
Penn Yan	ESWC
Rye	S
Salamanca	EWA
Saranac Lake	SW
Scarsdale	None
Scotia	SW
Seneca Falls	SWC
Solvay	EdW
Tarrytown	W
Tuckahoe	None
Tupper Lake	Ew
Waverly	WC
Wellsville	ESW
Whitehall	WC
North Carolina	
Asheboro	WC
Burlington	SWC
Canton	W
Greenville	EGWC
Henderson	SWC
Hendersonville	SWCA
Hickory	SWC
Kings Mountain	EdSWC
Lenoir	WC
Lexington	EdWC
Monroe	ESWC
Mooresville	SWC
Morganton	EdWCA
Mount Airy	WC
Reidsville	SWC
Tarboro	EWCA
Washington	ESWPC
North Dakota	
Devils Lake	AbA
Dickinson	W
Jamestown	SW
Mandan	W
Valley City	ESW
Williston	WA
Ohio	
Athens	WCA
Bedford	EdW
Bellefontaine	EGSW
Bellevue	WC
Berea	ESWC
Bexley	W
Bowling Green	SC
Cheviot	C
Circleville	S
Conneaut	WC
Defiance	WC
Delaware	SW
Delphos	SW
Dover	EWC
East Palestine	ESW
Galion	ESW
Gallipolis	W
Girard	WC
Grandview Hts.	None
Greenville	SWC
Jackson	ESC
Kent	SWC
Kenton	WC
Lockland	W
Logan	W
Maple Heights	None
Miamisburg	EW
Mingo Junction	WC
Mount Vernon	SWC
Nelsonville	EW
New Boston	None
Norwalk	ESW
Oakwood	W
Ravenna	SW
Reading	EW
Rocky River	None
St. Bernard	E
St. Marys	ESW
Shelby	ESW
Sidney	WC
Toronto	W
Troy	EWC
Uhrichsville	C
Urbana	SWC
Van Wert	SWCA
Wadsworth	ESWC
Wapakoneta	EdSWC
Washington Court House	S
Wellston	ESWC
Wellsville	WC
Wilmington	S
Oklahoma	
Altus	ESWCA
Alva	W
Anadarko	EWC
Blackwell	ESWA
Bristow	SWC
Clinton	SW
Cushing	ESW
Duncan	ESWCA
Durant	SWMCA
Elk City	SWC
El Reno	SWC
Guthrie	WC
Henryetta	SWC
Holdenville	SWC
Hugo	SWC
Miami	ESWCA
Norman	W
Pawhuska	EGSWC
Picher	W
Sand Springs	None
Stillwater	ESWA
Woodward	WCA
Oregon	
Albany	None
Baker	ESWCA
Bend	WCA
Corvallis	W
LaGrande	SW
Marshfield	None
Oregon City	WC
Pendleton	SWCA
The Dalles	W
Pennsylvania	
Archbald	None
Ashland	W
Ashley	None
Avalon	None
Bangor	None
Beaver	W
Blairsville	W
Blakely	E
Bloomsburg	None
Brackenridge	EdW
Brentwood	None
Bridgeport	S
Centerville	None
Clearfield	.....
Clifton Hts.	None
Coaldale	None
Collingdale	None
Corry	None
Crafton	None
Danville	EWM
Darby	.....
Dupont	None
Duryea	.....
East Pittsburgh	None
E. Stroudsburg	W
Edwardsville	None
Emaus	W
Etna	EW
Exeter	None
Ford City	EW
Forest City	None
Forty Fort	None
Frackville	None
Freeland	None
Gettysburg	S
Glassport	None
Greenville	None
Grove City	ESW
Hollidaysburg	W
Honesdale	None
Huntingdon	WC
Indiana	S
Jersey Shore	None
Kane	None
Kittanning	None
Kulpmont	None
Lansdale	ES
Lansdowne	None
Lansford	None
Larksville	.....
Lehighton	None
Lock Haven	.....
Luzerne	None
McAdoo	None
Mechanicsburg	None
Media	SW
Middletown	E
Midland	None
Millvale	W
Milton	None
Minersville	None
Monongahela	None
Morrisville	WPM
Mount Oliver	None
Mount Pleasant	None
Nanty-Glo	W
Nazareth	None
New Brighton	None
Northampton	S
Oakmont	None
Palmerton	None
Pitcairn	E
Punxsutawney	None
Rankin	W
Ridgway	W
Rochester	S
St. Clair	Ed
St. Mary's	None
Sayre	None
Schuylkill Haven	EGW
Scottdale	None
Sewickley	W
Sharpsburg	EWP
Sharpsville	SW
So. Williamsport	None
Stroudsburg	S
Summit Hill	None
Swoyerville	None
Tarentum	EW
Throop	SC
Titusville	.....
Tyrone	W
West Hazleton	None
West Pittston	None
West View	None
West York	None
Wilmerding	None
Wilson	None
Windber	None
Winton	None
Yeadon	.....
Rhode Island	
Barrington	.....
Burrillville	EWC
Johnston	None
Warren	.....
South Carolina	
Aiken	W
Camden	EW
Chester	WMC
Clinton	EdWCAb
Darlington	None
Gaffney	EdSWC
Georgetown	ESWPM
Hartsville	SWC
Laurens	ESWAbA
Newberry	ESWPC
Orangeburg	EW
Union	ESWCAbA
South Dakota	
Lead	C
Yankton	SWA
Tennessee	
Alcoa	S
Athens	SWC
Clarksville	W
Cleveland	SWC
Columbia	None
Dyersburg	EWCA
Elizabethton	W
Greeneville	SW
Morristown	EW
Murfreesboro	SWC
Paris	SMC
Shelbyville	SC
Springfield	ESW
Union City	ESWC
Texas	
Bonham	SW
Borger	None
Breckenridge	SA
Brenham	SW
Bryan	ESWMC
Childress	SW
Cisco	SW
Coleman	ESW
Crystal City	SW
Denton	ESWC
Eagle Pass	None
Electra	SWC
Ennis	SW
Gainesville	ESWCA
Goose Creek	SW
Highland Park	SW*
Hillsboro	SWMC
Huntsville	SW
Jacksonville	SWCA
Kingsville	SW
Longview	SWC
Lufkin	SWA
Luling	S
McAllen	S
McKinney	WM
Marlin	SWC
Mercedes	S
Mexia	SWC
Midland	SW
Mineral Wells	W
Mission	SWCA
Nacogdoches	SWC
Navasota	SC
New Braunfels	SWC
Orange	P
Plainview	SW
Ranger	SWCA
San Marcos	SWC
Seguin	ESWC
Sulphur Springs	SWM
Taylor	SWCAb
Terrell	ESW
Uvalde	SWCA
Vernon	ESWCA
Victoria	SW
Waxahachie	SWC
Yoakum	ESW
Utah	
Brigham	ESWC
Logan	ESWCAbA
Murray	ESWC
Tooele	SWC
Vermont	
Bennington	WC
Brattleboro	W
Montpelier	WCA
Newport	W
Rockingham	C
St. Albans	SW
St. Johnsbury	WA
Winooski	W
Virginia	
Bristol	W
Clifton Forge	WC
Covington	W
Fredericksburg	GW
Hampton	None
Harrisonburg	ESW
Martinsville	ESW
Pulaski	WC
Radford	EW
South Norfolk	None
Waynesboro	WC
Washington	
Anacortes	W
Centralia	EWC
Kelso	W
Puyallup	WC
West Virginia	
Beckley	None
Elkins	W
Grafton	EWC
Hinton	None
Keyser	W
Princeton	A
Richwood	None
South Charleston	None
Welch	None
Wellsburg	SWC
Weston	None
Williamson	W
Wisconsin	
Antigo	SWC
Baraboo	W
Beaver Dam	SW
Chippewa Falls	W
De Pere	SW
Fort Atkinson	SW
Kaukauna	ESW
Marshfield	ESWC
Menasha	EW
Menomonie	SW
Merrill	None
Monroe	SW
Neenah	SWC
Oconto	None
Portage	SW
Rhinelander	WC
Rice Lake	EdWC
Waupun	ESWC
Whitefish	None
Wisconsin Rapids	EdW
Wyoming	
Laramie	CA
Rock Springs	SWCA
Sheridan	WCA

* Uses Dallas disposal plant, but owns distribution system.



ENGINEERING *Foresight*

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Then, when these designs go into production, Chapman metallurgists and machinists work together to turn out *able-bodied equipment* that will fully live up to its engineering expectancy.

For *your* waterworks, you can get forward-looking Chapman Valves and equipment . . . tried and proved under conditions like your own. Any type, any size. Globe, gate, check, cone and angle valves, with fittings, in all sizes. Sluice and shear gates. Hydrants, brass goods. Foot, flap and mud valves. Floor-stands and all types of operating mechanisms. The Chapman waterworks line is *complete*. For full details, write today to:

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When you write for that catalog, kindly mention THE AMERICAN CITY.

Forward Steps

Reported by
Municipal Officials, Chamber of Commerce Executives, and Others

Women Beautify City Built Where Once Was Rock and Sand

EL PASO, TEXAS.—This modern, bustling city, containing more than 100,000 persons, is really a metropolis in a desert area. The women in this city have played an important part in making such a desert city assume more beautiful lines.

In early times, when miners and cattlemen came to El Paso to trade, and when Mexicans came across the Rio Grande, later to become American citizens, El Paso grew without much direction. Adobe huts, ugly red brick huts and small houses dotted the Rio Grande Valley and the sides of the mountains. But as life became more settled after those pioneer days, the women of El Paso began an effective beautification program. Through a fine garden club they stimulated the love of gardens, and urged people to beautify their land with desert gardens and cacti and rock if flowers grown in other climates would not take hold.

Those who could afford it hauled in dirt from the valley to spread over their gardens and succeeded in growing roses and other flowers. But for the most part desert gardens, those containing many varieties of hardy cacti, proved the most enduring, especially during blistering summer heat. Today there are many decorative cactus gardens in El Paso which beautify the city twelve months a year.

The women, too, through the Women's Division of the El Paso Chamber of Commerce, recently started a home building program in which all contestants and entrants agree to build new homes along Spanish-Mexican architectural lines, in conformity with the tradition of the great Southwest. This type of architecture along with desert rock and cactus gardens fits in with the topography of the country and helps make it beautiful. To stimulate building the women have published a fine, highly-colored and illustrated booklet on Spanish-Mexican architecture which was financed by advertisements contributed by business men interested in the project. This book has helped to center building along the suggested architectural lines.

The women have also succeeded in establishing five fine parks within the city limits, making green things abound where once was rock and sand. They have also induced the City Water Department to offer low rates during the spring, summer and fall season to encourage home owners to water whatever green grass they have in this arid country. The women, too, for years have carried on a tree planting program, with the result that many streets are lined with hardy, slim cedars and evergreens, as well as poplars and a few elms.

Rock and sand were not insurmountable obstacles to El Paso women, who are making use of whatever natural resources they have at hand to beautify their city as much as possible.

MARTIN FRANCIS.

SPANISH-MEXICAN ARCHITECTURE AND DESERT GARDENS BEAUTIFY THE CITY OF EL PASO, TEXAS

A Water Bill Per Second

ROCHESTER, N. Y.—Water accounting and billing at Rochester is done by tabulating equipment of the International Business Machine Corporation. First the current reading and amount of consumption for the month, as given on the meter slip, are punched with dates on tabulating cards identified by street and house number.

The cards are checked for accuracy and are then run through a sorting machine, shown on the cover of this issue, which assembles the cards by amount of consumption. The cards are gang-punched for corresponding money value, and then re-sorted according to street and house, which is to say in bill-delivery order. (See front cover of this issue.)

After printing a revenue journal by running the cards through the tabulator, the bill feed is attached to the tabulator, and the bills are printed, including arrears, at the rate of one bill per second.

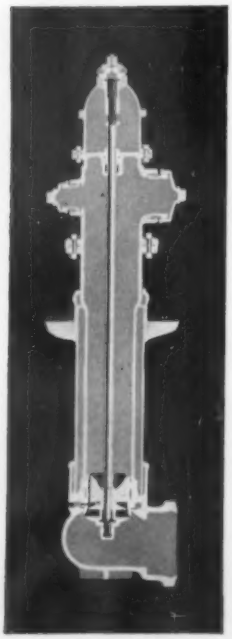
JOSEPH P. F. O'BRIEN,
Supervising Accountant, Water Accounting Division.

School of First Aid and Health

MILWAUKEE, WIS.—The Milwaukee Association of Commerce, through its Safety Division, is training 2,000 selected employees in its 1938 School of First Aid and Health. Injuries are costing Milwaukee employers approximately $2,500,000 annually—an important factor in production. That they can be materially reduced is evidenced by the sustained interest of hundreds of industrial plants which have utilized the School for the training of employees in first aid health.

The four weeks' training course (beginning May 2—Public Museum Lecture Hall) will provide instruction in the careful handling of men from the "point of injury to the plant hospital" and in "what not to do" when an accident occurs on the job. At the four Monday meetings, eight lectures and demonstrations will be presented covering "Common Injuries in the Plant and Home," "Wounds — Burns — Infections," "Unconscious-

BIG-MUSCLED FIREMAN Can't Hurt Mathews



• The Mathews operating stem is proof against the strongest fireman with the biggest wrench.

HE CAN'T TWIST THE STEM, for only the operating nut revolves. The stem itself moves straight up and down. It is free from torsion.

HE CAN'T BUCKLE THE STEM, for his force is never exerted along its whole length. A bronze stop nut meets the stuffing box as the valve comes full-open, ending further motion before the stem itself hits bottom.

The worst a fireman can do with any wrench is batter the wrought iron shield-nut which is instantly replaceable. One more proof that you'll never dig up a Mathews. Specify this hydrant by name.

MATHEWS HYDRANTS

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ness," "Resuscitation — Hemorrhage," "Fractures — Sprains — Dislocations," "Splints — Transportation of Injured," "Health and Hygiene,", "First Aid Films."

The Safety Division presents this project as a service to Milwaukee industry—a part of its 1938 training program involving a total of 14,000 employees.

JOSEPH S. PIECHOWSKI,
Chairman of the School.
CHARLES W. PENDOCK,
Chairman, Safety Division.

Free Municipal Parking Area Successful

WAUKESHA, WIS.—This city of 18,000 population has one of the few free municipal parking lots in the state, and it is proving a considerable relief to the congestion of the city's streets.

The lot has a capacity of 120 cars and has been operated for six years. It is located right in the heart of the downtown area on a plot of ground along the Fox River near Frame Park. The City Planning Department developed a marking system which utilizes all available space. Cars are parked in a horseshoe arrangement which makes each space accessible at all times and prevents tie-ups which result from bumper-to-bumper parking. No attendant is required on the lot, but it is policed by an officer on a beat just as curb parking is policed.

The capacity of the lot could be doubled if attendants were hired to park cars bumper to bumper as in many commercial lots. This has not been considered necessary, however, because the lot has been satisfactory on a self-operating basis. The upkeep has been about the same as the cost for maintenance of regular streets, the only expense being floodlight illumination until 12 midnight. No time restrictions are established.

The lot is widely used by shoppers, particularly farmers who are not accustomed to parking their machines in cramped spaces. Waukesha merchants stage many merchandising events which draw rural people to the city from great distances, and in such cases the municipal parking lot is very convenient.

WALTER E. DICK,
City Engineer.

MUNICIPAL PARKING AREA, WAUKESHA, WIS.

Diesel Plant Does Royally in 1937

ARCANUM, OHIO.—In 1937 the municipal diesel-electric plant of the village of Arcanum, population 1,300, generated 794,800 kwh, compared with 708,200 in 1936, and grossed $31,145 compared with $29,096. Operating expenditures in 1937 amounted to $19,211 (with $10,703 set aside for bond retirement), and to $19,217 in 1936, with $6,471 for bond retirement. Cash on hand at the close of 1936 amounted to $4,181, and at the close of 1937 to $8,458.

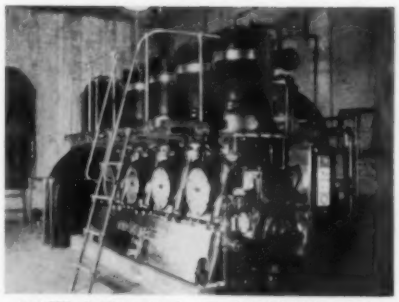
The prime movers comprise two Fairbanks-Morse diesel engines—No. 1 of 280 hp, No. 2 of 140 hp, both installed in 1935, and No. 3, a De La Vergne of 320 hp, installed in 1932 and run only part time in 1936 and 1937. The unit consumptions of engines No. 1 and No. 2 (gallon per kwh and kwh per gallon) were as follows:

	OIL			
	FUEL		LUBRICATING	
No. 1	Gal. per Kwh	Kwh per Gal.	Gal. per Kwh	Kwh per Gal.
1936....	0.087	11.5	0.00152	658.0
1937....	0.089	11.2	.00174	573.4
No. 2				
1936....	0.090	11.0	.00331	302.2
1937....	0.087	11.4	.00283	351.8

The circulating pumps for the years 1936 and 1937 consumed 25,510 kwh and 28,070 kwh respectively; station lighting 7,305 and 6,684 kwh. Street lights consumed 40,550 and 41,750 kwh in the two years.

Kwh output on the lines totaled 575,800 in 1936 and 657,500 in 1937. Revenues for this energy in the two years amounted to $24,844 and $27,049, so that the average rate was 4.31 cents in 1936 and 4.11 in 1937.

The first generating plant was built here in 1905, with power furnished by a steam engine driving a 96-kw generator. A 50-kw unit was added in 1908, and in 1927 a 150-kw steam-engine-driven generator was installed. Increased load decided us in 1932 to go diesel, and our first diesel unit paid for itself in three years and our plant was debt-free. As our bond-retirement figures show, we are well on our way to pay for the two 1935 units, when we shall be not only without debt, but with an additional $10,000 a year to apply where it will do the most good.



280-HP F-M DIESEL AT ARCANUM, OHIO

O. E. STRADER,
Clerk, Arcanum Water and Electric Light Plant.

The Recent Community Forum in Knoxville

KNOXVILLE, TENN.—This city recently concluded its first organized Community Forum, a series of eight meetings held from January to May.

"What Kind of Community Have We and Where Are We Going?" was the keynote of the program, which attracted capacity audiences at every session. Knoxville, an industrial and trading city of 120,000 population, has grown rapidly in the last three decades and is now confronted by problems not envisaged by its rural forefathers.

The Forum, held at the High School on alternate Tuesday evenings, became an old-fashioned town meeting as officials of various city and county departments described their functions and submitted to lively questioning, particularly by club women. The discussion brought out the fact that the per capita municipal budget is only about 60 per cent of the average budget of large cities in the North and West, that schools and libraries are pressed for funds, and that there is a shortage of inspectors and nurses to properly watch health and sanitary conditions. Public health, largely a municipal matter, has a lower per capita expenditure in Knoxville than the national average, or that of other Southern cities of like size.

Assertions by taxpayers that real estate is taxed too high resulted in admission by a city official that the personal property assessment of $12,000,000 may be inadequate, since there is no check on just how much such property exists in Knoxville, where much of the wealth of upper East Tennessee is concentrated. A citizen asserted that in some cases there is a noticeable inequality in assessment on such property.

Government Housing Program Explained

The town meeting nature of the Forum was useful in greatly clarifying the details of the Federal housing and slum clearance program, in which Knoxville

CITY SAVES $38,000!

Read How City of Hastings, Michigan, Saved Over $6300 a Year in Pumping Costs and Cut Water Rate 15% . . . by Replacing Old Pumps with Allis-Chalmers!

THE WATER DEPARTMENT AT HASTINGS, MICHIGAN. City Engineer Bert Sparks inspects the pumps that have saved the City of Hastings as much as $6372 in a single year! They are an Allis-Chalmers 2½" x 2" Type SJH, rated 250 gpm at 150 ft. head, and two Allis-Chalmers 3" x 2½" Type SJH pumps, each rated 350 gpm at 150 ft. head.

Water rate reduced 15%! Reserve fund of $11,000 built up by a department that previously showed a deficit. $38,000 saved in pumping costs!

That's what actually happened in the City of Hastings, Michigan, when City Engineer Bert Sparks replaced steam driven reciprocating pumps with three Allis-Chalmers motor-driven centrifugal pumps!

It's not hard to understand why! The former fuel cost for steam-driven pumps was 6c per 1000 gallons pumped. But the cost for the Allis-Chalmers motor-driven pumps is only 1¾c per 1000 gallons. That means an actual average saving of $6372 per year to the City of Hastings, in pumping costs alone! $38,000 since the pumps were installed!

Allis-Chalmers Engineering Cuts Costs!

No wonder that when a fourth pump was purchased in the fall of 1937, the City of Hastings specified Allis-Chalmers! For the engineering that has created Allis-Chalmers equipment means lower costs . . . actual savings in dollars and cents. And like savings result from Allis-Chalmers assumption of undivided responsibility for both pump and drive!

What Allis-Chalmers Centrifugal Pumps have accomplished for the City of Hastings, they can do for your city or for your factory. The Hastings installation is typical of the way Allis-Chalmers has solved municipal and industrial pumping problems throughout the country. There's an Allis-Chalmers representative near you. Let him show you how Allis-Chalmers pumps can actually pay for themselves . . . how many dollars they can save!

623

CENTRIFUGAL PUMP DIVISION

ALLIS-CHALMERS

MILWAUKEE-WISCONSIN

SINGLE-STAGE DOUBLE-SUCTION PUMPS • CLOSE-COUPLED SINGLE-STAGE SSUnit PUMPS • MULTI-STAGE PUMPS • PAPER STOCK PUMPS • MIXED FLOW AND AXIAL FLOW PUMPS • AND SPECIAL DESIGNS FOR UNUSUAL APPLICATIONS

is about to participate with a $2,000,000 loan. In a debate with leading realtors, the members of the Housing Board pointed out that local slums cost the city five times more than they bring in in taxes, and that surplus housing will not be created to any extent, since for each new home built a corresponding slum dwelling must be demolished.

The Forum program afforded wide community representation. Farmers asked for enlargement of Knoxville's noted but outgrown public market. A labor leader pointed out alleged injustices in local working conditions and attacked the poll tax as in effect preventing many poor people from voting. Youth described its declining morale in the face of lack of jobs and too many delayed marriages. Problems of family life were thrashed out, and here youth suggested that greater parental recognition and more attractive neighborhood conditions might revive interest in the preservation of the old-fashioned home.

The Forum was sponsored by the Knoxville-Knox County Adult Education Council in cooperation with its nineteen member agencies, which include the League of Women Voters, the Parent-Teacher Association, labor unions, agricultural agencies, women's clubs, the TVA, and the University of Tennessee. Professors of the University were active as speakers and in the compilation of community facts. The Public Library had a table of relevant books and pamphlets at each session, attended by employees who distributed circulars listing information on Forum subjects available at the library. Members of the audience suggested another Forum series for next season.

JOHN A. PIQUET.

Bicycle Registration for Safety

SPRINGFIELD, MASS.—The Safety Council of Springfield, Mass., began registration of bicycles on a voluntary basis on May 29, distributing blanks to all schools, where directors of physical education will supervise their filling and return to Council headquarters. The drive will last a week.

Rev. Edward J. Featherstone and Franklin J. Gray, vice-presidents of the safety education division of the Greater Springfield Safety Council, pointed out that one child was killed and 96 hurt in 1937, and that the matter of bicycle safety was reaching such serious proportions that some action must be taken. It is estimated that there are more than 5,000 bicycles in use at the schools of this city.

Every child whose bicycle is registered agrees to abide by a few simple rules, such as proper light equipment for night riding; that he or she will not ride on the sidewalk or carry another person on his machine; that he will not indulge in trick riding; that he will ride close to the right-hand curb with traffic, and give the proper hand signals. The rider also agrees to have his machine equipped wth a horn or bell.

The registration will bear the name and address of the owner, his age and date of registration, the color and manufacturers' number of the bicycle. The owner will receive a metal tag bearing the registration number and the name of the city. A fee of 10 cents will be charged to cover the registration and tax expense.

EARL ARONSON.

A Parking Lot That Is Not an Eyesore

IN AN editorial campaign for ridding Baltimore of its parking lot eyesores, *The Evening Sun* of that city published in its issue of May 9, 1938, the illustration of the attractive parking lot here reproduced. The item accompanying the picture said in part:

This is a parking lot for automobiles. It is situated on the corner of Park Avenue and Centre Street. In contrast to most of the other parking lots in Baltimore, it is quite attractive to look at. The old structure which was torn down to make way for it was built of brick, and the concern which operates this lot saved some of the bricks. Out of these a small gang of bricklayers in two short working days built the wall shown in the picture. The iron grill which surmounts the wall and gives it a certain chaste elegance is salvaged material also. Thus the cost of making an attractive thing out of this parking lot, instead of adding another eyesore to a not too beautiful city, was nothing more than the wages of the bricklayers. The old brick was unevenly fired, and the wall thus has an agreeably variegated effect. The operators of this lot have wisely left the wall unpainted.

Parking lots, as Baltimore now knows them, are an outgrowth of the depression. Before then, most people who thought about the problem of parking did their thinking in terms of multi-story garages fitted with ramps or elevators. But so far these have failed to provide the complete answer. Their overhead costs put them out of competition with the ordinary lots.

The immense increase in the number of parking lots may be laid to these circumstances: First, a parking problem that was getting to be intolerable; second, the existence in every large American city of a belt of derelict property immediately adjacent to the main business district. This is property which has to pay taxes on fairly high assessments. It has been held unoccupied on the optimistic but usually erroneous theory promulgated by the local guild of boosters that the city is going to grow bigger and richer very rapidly and will thus need more room for swell banks, department stores and office buildings. This is pure baloney, but up until the depression nearly everyone believed it. Then, and only then, the need for immediate income overcame the speculative urge. Many such speculative properties, stripped of their derelict "improvements" and turned into parking lots, have been made to yield a revenue, while at the same time paying less in taxes.

This much may be said for parking lots: they have served their primary purpose well enough. Further, the increase of them has rid Baltimore and many another city of a lot of ramshackle buildings and has let air and light into many a congested district. But most parking lots are held on precarious tenure. The owners of such properties continue to hope that when times get better some one will come along and want to fill the vacant lot with another Baltimore Trust Company or another Bromo Seltzer Tower. Hence they feel no impulse to adorn their parking lots or even to keep them passably presentable. . . .

But here and there one sees signs that property owners are beginning to look on their parking lots not as pieces of speculative real estate hungering for a skyscraper but as what they really are—*i.e.*, permanent parking lots. The lots begin to lose their makeshift quality. This one on the corner of Park Avenue and Centre Street is a case in point.

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bringing water pressure UP to normal, and in keeping water department expense DOWN, by eliminating the necessity for pipe replacements or extensions, or for increasing the power at the pumps, which would otherwise be required to maintain the water pressure at a point of safety.

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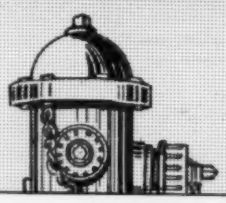

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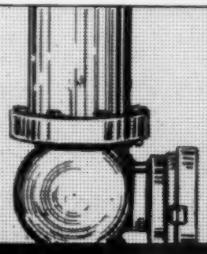


FIRE HYDRANTS

Traffic Control and Facilitation

Conducted by Publications Committee, Institute of Traffic Engineers, 1 Park Ave., New York

Paul L. Green, Chairman; George W. Barton, Kenneth W. Mackall, Miller McClintock, Robert A. Mitchell, William R. McConochie, Arnold H. Vey, Joseph L. Wehmeyer, William A. Van Duzer, Thomas J. Seburn, Roger L. Morrison, Otto K. Jelinek, William C. Brandes

Clearing Paterson's Traffic Muddle

TWO rather simple measures have wrought a tremendous improvement in the traffic situation in Paterson, N. J. The first measure was the installation of traffic signals at three intersections in May, 1935, and at eleven others in October, 1936, all of Signal Service Corporation make. Where these signals should be installed was determined by a comprehensive survey of traffic flows made by a force of 28 WPA workers in 1935.

Paterson's highways, roads and streets tend to empty into one center, and traffic signals have not been installed in this congested area. The people would not observe them without police supervision, and the police force is not large enough to supervise them properly. In fact, during the eight years prior to 1935 there were no traffic signals at all in the city of Paterson.

Consequently, the city was less concerned with the volume of traffic on Main and Market Streets than on the heavy-traffic arteries in the outlying districts. Based on specific counts and actual accident experience, traffic signals then were installed at fourteen busy intersections, a number of which are in the vicinity of schools. The results are indicated by "before and after" statistics at a typical intersection, Madison and Tenth Avenues. From January 1 to October 31, 1935, without signals at this intersection, accidents were as follows: resulting in death, 1; in injuries, 2; in property damage, 7; total accidents, 10. For the ten months from October 31, 1935, when the traffic signals were installed, there was one property-damage accident only, and the damage was slight.

Traffic fatalities in the city fell from 27 in 1935 to 20 in 1936, a drop of 26 per cent, and in that year Paterson was awarded second place by the National Safety Council for cities of 100,000 to 250,000 population. Deaths in 1937 rose to 25. Fatalities for the six years 1932-37 respectively have been as follows: 30, 29, 20, 27, 20, 25.

So Far So Good

Newspapers, business men, plain citizens, and municipal officials recognized that something had been accomplished, but not enough. On September 15, 1936, the *Morning Call* demanded a comprehensive solution of Paterson's parking problem. The WPA fact-finding project, the three signals already installed and the eleven to go in, were well and good, but a broad plan was needed to move traffic into and out of the city and to handle parking. Indeed, it was a question whether parking should be permitted at all in the business district.

CRASHES AT TYPICAL INTERSECTION BEFORE SIGNALS WERE INSTALLED

The dots indicate accidents that happened here from January 1, 1935, to April, 1936; no accidents occurred after the installation of traffic lights

The WPA study included a survey of parking conditions, how many cars on each block, how long each car was parked. From this report, the administration knew how unsatisfactory the situation was. The WPA report, after covering the accident and traffic-signal situation said: "There still remains the great problem of parking, a problem which present-day communities are finding increasingly hard to solve." What was the cure?

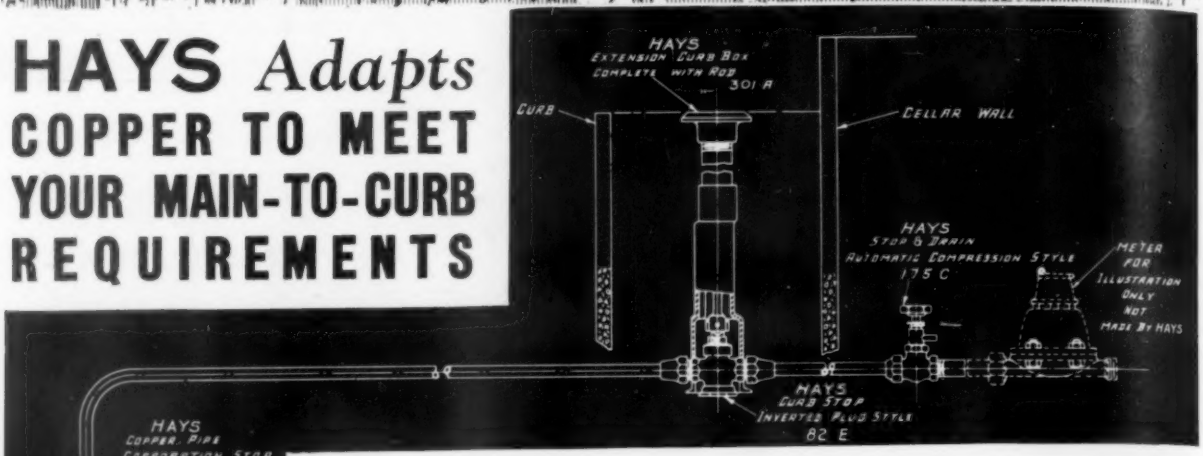
The Second Measure

The nearby city of Passaic had installed parking meters, with evident success. Congestion and parking abuses had been extreme there; both had obviously been broken up by the meters, to the satisfaction of everybody concerned. Paterson installed 550 Karpark meters in February, 1938.

Favorable results were immediate. Traffic in the business district now moves freely and there is ample space to park on any block. That the meters are being patronized is indicated by collections averaging more than $7 per meter in March. The newspapers are favorable to the meters, which is good evidence that the merchants are too, and by and large they are. In fact, prior to the installation of the me-

AFTER EIGHT YEARS WITHOUT ANY TRAFFIC SIGNALS, PATERSON, N. J., INSTALLED THESE LIGHTS AT 14 INTERSECTIONS, WITH CONCLUSIVE RESULTS

HAYS *Adapts* COPPER TO MEET YOUR MAIN-TO-CURB REQUIREMENTS



Every city wants copper underground services—they last longer—require least digging on replacement work—take ground pressures without breaking—bend easily and are easily installed. Hays has made it easy and economical to change over to copper—Hays gives you a choice of 3 proved copper connections adaptable to your present piping with least expense. Write for details.

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Eddy Fire Hydrants have many points that appeal to water-works men. For example:

A damaged valve can be replaced in a few minutes at slight expense.

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All hydrants are frost-proof.

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Single rooms from $2.50 daily with private bath or shower
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Weekly rates on request.

Write Mr. Charles W. Schwefel, Managing Director for Booklet 'AC' and Supervue Map of New York

ORDINANCE SHOWS WHY PARKING METERS WERE INSTALLED IN PATERSON, N. J.

Whereas, because of the width of the streets in certain sections of the city of Paterson, the free moving of traffic in the downtown business district is impeded, and

Whereas, previous attempts to regulate the parking in the aforesaid area have not been as successful as is desirable because of the small number of traffic policemen available therefor and the size of the aforesaid area, and

Whereas, because the habit of numerous operators of motor vehicles by which they take advantage of the above-mentioned situation by parking for unreasonably long periods of time in close proximity to the other motor vehicles so parked on the most congested parts of the city's busiest streets tends to further impede traffic and in addition thereto is unfair to other motorists and constitutes a danger to life, limb and property of motorists and pedestrians, and

Whereas, it is the opinion of the Board of Public Works of the city of Paterson that the best way by which the above-mentioned conditions may be remedied is by the designation of individual parking spaces in the said area, by providing for the use of mechanical parking-time indicators in conjunction therewith, by restricting parking in said area to reasonable intervals of time and by compelling the operators of vehicles who enjoy the use of the parking space so designated to pay a portion of the cost of establishing and maintaining the same, now therefore . . . .

The Board of Public Works is hereby authorized to establish immediately zones to be known as parking meter zones in the following streets and avenues in the city of Paterson . . . .

ters, a leading merchant offered to purchase, if permitted, three meters and install them at his own expense in front of his store. Recently, a woman customer told him gleefully that for the first time in years she had found it possible to stop at his store. The Police Department is for the meters to a man. They merely point to the streets, at the orderly movement and spaced parking.

The institution of these two measures—the installation of traffic signals to slow up speed and reduce accidents on highway streets, and the installation of parking meters to regulate parking—was preceded by years of public dissatisfaction with existing traffic conditions. The painstaking study revealed the amount and concentration of the trouble. In the case of accidents, where these accumulated at certain intersections, the need for traffic signals was apparent. Not so apparent, because of the novelty, was the need for parking meters, yet the meters were needed to break up congestion due to parking just as surely as signals were needed to reduce speeds on the traffic arteries. Both devices were installed after much deliberation and have been unquestionably effective.

Speed Restriction Measures Recommended

A STUDY of "Vehicle Speeds" in Minneapolis, Minn., was made in 1937 by the City Engineer's Department in cooperation with WPA. Fred T. Paul is City Engineer; J. C. Vincent, Traffic Engineer; Ralph Sprungman, Project Director. The recently issued report contains these recommendations:

1. That the enforcement agency be adequately equipped and fully instructed to make complete use of its police power.
2. That the courts cooperate with the enforcement agency to the extent whereby all arrests become convictions.
3. That the extension of the signal system be contemplated as the most practicable means for effective control.
4. That sufficient street lighting be provided on all thoroughfares.
5. That greater and more effective placement of the authorized "30 mile" signs be undertaken.
6. That the creation of better sight-distance across intersections be undertaken to enable drivers to see approaching vehicles on the intersecting streets.
7. That some means be arranged whereby the Traffic Division of the City Engineer's Department and the Police Department be provided with vehicle speed observations for use in engineering consideration of traffic problems and enforcement.
8. That the enforcement agencies be instructed to provide continuous, 24-hour enforcement on the 30-mile limit. It is most important that this vital work extend into the early morning hours.
9. That a definite program of enforcement be instituted and adhered to relative to the specific problem of vehicle speeds.
10. That some public body or association inaugurate some incentive to Better Driving.

Much Safer Cleveland

CLEVELAND, OHIO, in the first three months of this year has by a strenuous safety effort held serious traffic injuries to 695, against 1,041 in the first quarter of 1937, and deaths to 20 against 65 last year. One of the methods was a slogan contest, the winner being "Cleveland Values Your Life. Protect It. Walk Sensibly. Drive Carefully." Others of the slogans are erected from time to time, one of the best being shown here.

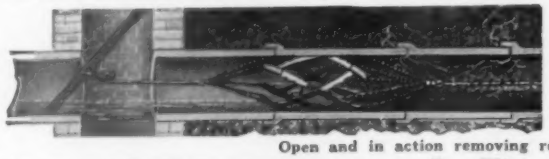
Keeping at It Reduced Fatalities

A STEADY improvement program of widening streets, eliminating dangerous curves, enlarging intersections by cutting off sharp sidewalk corners, has helped bring results in the program of safety here in Belleville, Ill. (Population 28,000.) Local newspaper cooperation has helped.

Membership in the National Safety Council in 1936 gave us an accurate system of tabulating accidents, and in 1937 we put up an accident spot map, bringing valuable publicity. Safety pictures were shown in the theaters; talks were made before parent-teacher associations and high schools. In March, the Junior High School had a Safety Week. We pleaded with the unintentional traffic violator to use caution, and severely punished the reckless driver. Our newspapers receive monthly a detailed account of all automobile accidents in the city. In summary, our success in decreasing the accident rate was due to: (1) education and publicity; (2) asking the unintentional traffic violator to be more careful; (3) widening streets and eliminating a number of dangerous curves; (4) punishing the actual reckless driver. Keeping accurate check on all accidents and spotting them is a great help, for it gives me just one place to go to for all statistics on traffic accidents.

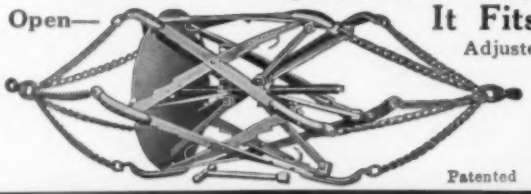
THOMAS H. LONIE,
Chief of Police, Belleville, Ill.

EXPANDING ROOT CUTTER & SEWER CLEANER



Open and in action removing roots and caked sediment like this.

Open—



Patented

It Fits in on Every Sewer Cleaning Job

Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY

108 East Walnut St. Nappanee, Ind.

1. Clean the flange.

2. Measure the diameter.

3. Cut length of TAPAX needed.

TAKING THE **BANG** OUT OF MANHOLE COVERS with

TAPAX

Quick - Easy - Lasting

4. Form it with hands.

5. Put TAPAX—sticky side down—on flange. Replace cover.

TAPAX is the surest relief from rattling, banging manhole covers and offers you the simplest solution for noisy covers at a cost of comparatively a few cents an application. TAPAX is a resilient cushioned composition of asbestos and bronze, shipped in convenient reels. It will "stay put" for years. Ask for sample.

Send for catalog showing our complete line of water works equipment.

TROHN'S SUPPLIES, Incorporated
201-203 HOYT AVENUE, MAMARONECK, N. Y.

Giant Pipe Pusher

Save on Trenching Costs with a Giant Pipe Pusher

This remarkable machine will lay pipe or conduit up to 15 in. in diameter, for less cost than other methods that can be employed. Compact . . . easily handled . . . powerful . . . very rapid in operation . . . economical in cost.

Write today for information on this profitable tool.

GIANT MANUFACTURING CO. Dept. F Council Bluffs, Iowa

Johnson City Fire Hydrant

Not just another hydrant—but one designed to overcome difficulties heretofore troublesome to water works men and fire chiefs . . . with an *extra factor of safety* for severe service.

Not easily damaged; but if ever injured, easily and quickly repaired without shutting off the line and without digging.

Write for circular giving complete details.

Johnson City Foundry & Machine Co.
Johnson City, Tenn.

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SAFETOP FIRE HYDRANTS

Extra large standpipes; simple, straight-line operating mechanism; smooth elbow and nozzle curves; specially long-wearing valve and gasket materials; flood-proof and frost-proof. The Patented Safety Breakable Section permits speedy, economical repairs if broken in a smashing collision.

NEWTYPE WATER GATES

Built to A.W.W.A. Specifications. All parts amply strong, with simple, positive and dependable operating mechanism. Built in sizes up to 60 in. and for manual, gear, electric motor, or hydraulic cylinder control.

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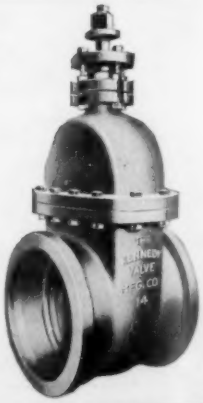

Improving Municipal Administration

Current Items from the Public Administration Clearing House

Motorized Road Blockades Planned by Western States to Hunt Criminals

MOTORIZED road blockades, a streamlined model of the old-fashioned sheriff's posse, are being perfected by western states to catch escaping criminals, the International Association of Chiefs of Police reported today.

City, county and state law-enforcement officials in Oregon, Washington, Idaho and California will pool their resources and facilities to obtain mutual, directed aid during criminal hunts. The blockade will be organized by districts of several counties each so that it can be put into effect in any one district or extended to the entire area. State police, highway departments, telephone and telegraph companies, commercial radio stations, and railroad company special agents will cooperate.

The western state blockade plan is similar to that organized for lower Michigan. Michigan's blockade system is operated with the aid of a mechanical map from State Police headquarters. The location of cruising police cars is designated on the map, so that the central state police station keeps close check on troopers, sheriffs and other peace officers.

Municipal Parking Lots Reduce Traffic Congestion

IN an attempt to solve their growing parking and traffic congestion problems, cities in at least 17 states have acquired municipally owned parking space near their central business districts, a survey conducted by the American Society of Planning Officials and the International City Managers' Association, in cooperation with 200 cities representing every population group, discloses. Twenty-five cities reported that they are providing off-street parking space, and six others announced surveys of their parking problem with a view toward establishing municipal parking lots. Virtually all the cities maintaining municipal parking areas reported that business men in the city are favorable to the plan.

Parking fees in the municipal lots range from 10 to 75 cents a day, with 25 cents the average fee for all-day parking. In most of the 200 cities surveyed, merchants and business firms provide at least partial parking facilities for their customers. San Diego, Calif., is among the cities providing a large free parking area, and Kansas City, Kans, has a bill pending in the Legislature to enable condemnation of land for free parking in the business district.

The city of Chicago lake-front parking space in Grant Park, near the business district, is probably the largest municipal parking area in the nation. This area now has a capacity of 2,500 cars and is being enlarged to provide parking facilities for 3,500 cars within the next few months.

Among the other larger parking areas provided by cities are: Brockton, Mass., 200 cars; Bay City, Mich., 500 cars; Trenton, N. J., 700 cars; Hackensack, N. J., 700 cars; Eldorado, Kans., 150; and Oklahoma City, Okla., 100 cars.

Methods of acquiring the municipal parking areas varied from utilization of tax-delinquent land in possession of the city to purchasing and leasing vacant lots. Flint, Mich., purchased its parking space for $110,000 in 1919, and Schenectady, N. Y., for $100,000.

Among the cities reporting operation of municipal parking lots are: San Mateo and San Diego, Calif.; Chicago, Jacksonville, and Winnetka, Ill.; Waterville, Maine; Brockton and Quincy, Mass.; Bay City, Flint and Saginaw, Mich.; Trenton and Hackensack, N. J.; New York City, Ithaca and Schenectady, N. Y.; Asheville and Greensboro, N. C.; Piqua and Mansfield, Ohio; Oklahoma City, Okla.; Mitchell, S. Dak.; Memphis, Tenn.; Petersburg, Va.; Oshkosh, Racine, Janesville, Waukesha and Clintonville, Wis.

Showing Citizens What Makes Wheels of Government Turn

DEMONSTRATIONS showing "what makes the wheels turn" in the governments of several cities are reported by the International City Managers' Association.

The tenth annual City Hall "Open House" in Berkeley, Calif., set a new attendance record, with 12,000 persons attending municipal band concerts, entertainment by the City Recreation Department, demonstrations of municipal work and equipment, and movies about local governmental functions.

Louisville, Ky., recently completed a 1,400-foot film entitled "Your City Government," and Portland, Ore., filmed a color movie called "Your Government in Action." Most of the Portland filming was done by city employees. The movies in both cities are available to all civic organizations, schools and churches.

Recent City Manager Appointments

J. R. FRENCH, former Director of Finance, has been appointed City Manager of Verdun, Que., under the new charter just granted by the Quebec Provincial Legislature.

J. B. Hart has replaced C. W. Meadows as City Manager of San Angelo, Texas.

C. A. Latimer, former City Engineer, has been appointed City Manager of Mamaroneck, N. Y. He succeeds R. J. Whitney, who has served that city since 1931.

Robert Lightstone has been appointed City Manager of Excelsior Springs, Mo. He fills a vacancy left open since Bernard S. Alnutt's resignation in February.

Hugh B. Rice, former Director of Public Works, has been appointed first City Manager of Lexington, Va.

W. C. Rozar has succeeded John Harrell as City Manager of Eastman, Ga.

D. H. Stevens, formerly employed as Town Agent, has been appointed first Town Manager of Milo, Maine.

W. G. Williamson has succeeded C. L. Stine as City Manager of Pampa, Texas.

L. Philip Theriault has been appointed first Town Manager of Dover-Foxcroft, Maine.

CLARENCE E. RIDLEY,
Executive Director, International City Managers' Association.

The Municipal Bond Market

Typical sales of new issues reported in recent issues of *The Bond Buyer*:

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$450,000	Albany Co., N. Y., Tax Revenue of 1937	1.3	1-5 Ser.	1.25
245,000	Upper Darby Tp., Pa., School	1.5	5.33 Avg.	1.35
140,000	Bethlehem, Pa., Refunding	1.5	3.33 Avg.	1.40
2,600,000	Hartford, Conn., Refunding, General Improvement and Elementary School	1.75	6.29 Avg.	1.49
100,000	Saratoga, N. Y., Highway	1.60	1-10 Ser.	1.56
2,000,000	Rochester, N. Y., Public Improvement	2	1-20 Ser.	1.94
135,000	Madison, Minn., Water and Light Plant	2.5	7-5/6-11¾ O.A.	2.48
136,000	Saugus, Mass., Sewer	2.75	12.33 Avg.	2.66
179,000	Chatham, N. J., Sewer and Refunding	2.75	14.25 Avg.	2.69
230,000	Morgan Co., Ala., Refunding	3	1-10 Ser.	2.98
1,596,000	Newark, N. J., Emergency Relief	4	4.33 Avg.	3.84

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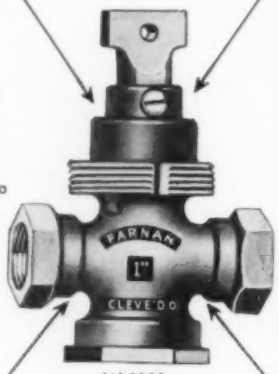
everything points

Farnan Brass Works Company
Cleveland, Ohio



W-2300

(Eighty-six years of dependable service)

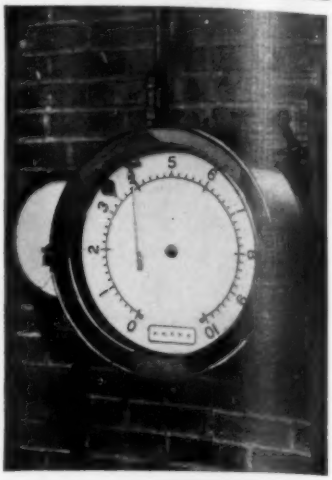
to the best in

BRASS

Stops-Couplings-Fittings

Established 1852

40% Saved by Detecting Leaks in Night Pumpage



When a Cochrane Flow Meter was installed to measure discharge from pumps of a waterworks plant, a steady flow was recorded between 1 A.M. and 4 A.M. This indicated leakage. An investigation disclosed several large leaks previously unknown. These were remedied, and future recordings showed the leakage was reduced 40%. Based on 24 hours' pumpage, the saving represented a tidy sum—estimated as sufficient to pay for the Cochrane Meter **every two months.**

The only way to know how much water, steam or air is being used or supplied to a particular plant operation is to meter it. And the best way to be certain that your meter recordings are accurate is to install Cochrane Flow Meters. They are **guaranteed** accurate.

Municipal engineers everywhere recommend Cochrane Meters, because they have proved to be reliable operating guides—disclosing inefficiency and waste, when existent, so that adjustments can be made and savings effected.

Write for Publication No. 2094

Cochrane Corp., 3118 N. 17th St., Philadelphia, Pa.

COCHRANE

FLOW METERS

L. H. Nash Meter

Empire Meter

When you buy National Meters you buy sixty-eight years of practical experience in the manufacture of meters of the highest quality. This means maximum revenue and low maintenance. NATIONAL METER COMPANY, 4201 First Avenue, Brooklyn, N. Y.

Investigate!

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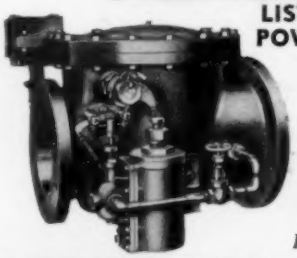
LIST 34 CLEARWAY POWER CHECK VALVES



- Cut Pumping Costs
- Eliminate Slam
- Reduce Wear on Working Parts
- Close Quietly

Details in Bulletin "V"

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DEPENDABLE ALWAYS

A DEPENDABLE SELF-CAULKING JOINT COMPOUND

For strong, tight, flexible cast iron water pipe joints ★ ★ ★ Used on thousands of miles of pipe for more than 24 years ★ ★ ★ Not a failure anywhere.

HYDRAULIC DEVELOPMENT CORPORATION

50 Church St., New York

HYDRO-TITE

Trend of Tax Delinquency, 1930 - 1937, in Cities of Over 50,000 Population

FOR the accompanying chart and table, THE AMERICAN CITY is indebted to the Municipal Service Department of Dun & Bradstreet, Inc., from whose report on "Trend of Tax Delinquency," published last month, they are reproduced.

Perhaps the most outstanding feature of the improvement in current tax collections in 1936 and 1937 was the relatively large number of cities which bettered their 1930 records—a development which calls for attention particularly because the median figures were still short of attaining the 1930 level. In 1936 some 46 cities of the 150 reported lower year-end delinquency than in 1930, while for 1937 the number rose to 58. The report points out that:

"Various factors enter into the explanation of this very constructive development. A return to the 1930 level may be merely a reflection of well-rounded and stable resources which permitted a quick restoration of near-normal levels, but records for the past two years which were conspicuously better than 1930 are a product of special factors. Drastically lower tax levies provide at least part of the explanation in a few instances, such as Atlantic City, Philadelphia, Pontiac, Jacksonville and Miami. The Florida cities, additionally, were better off economically than in 1930. But for a majority of the sample group, as well as of the entire 58, changes in tax collection procedure or more vigorous collection methods have been either a contributing or dominating influence in the outstanding improvement shown. There may be cited, for example, the institution of quarterly payments and more regular tax sales in New Jersey; the billing of taxes earlier in the year in Massachusetts; the advancement of delinquency dates and tightening of penalties in New York City; and, in general, the utilization of businesslike ways of sending out bills, following up delinquents, and stressing civic responsibility."

Another method of determining how far behind cities are in the collection of their taxes is used in the report.

This is to relate the total *accumulation* of delinquent taxes to a year's levy. This has been done, in the accompanying table, for 131 cities of over 50,000 population. In this table is shown, for each of these cities, the ratio of the total of uncollected taxes of all years, including tax title liens owned, at the close of the 1937 fiscal year, to the levy of 1937. In discussing this table, the report says, in part:

"The range in accumulated delinquency in 1937 was extraordinarily broad, extending from less than 10 per cent in 7 of 131 cities to over 100 per cent in 9. The median figure for the entire group was 41.6 per cent, compared with 48.4 per cent in 1935 for almost identical groups.

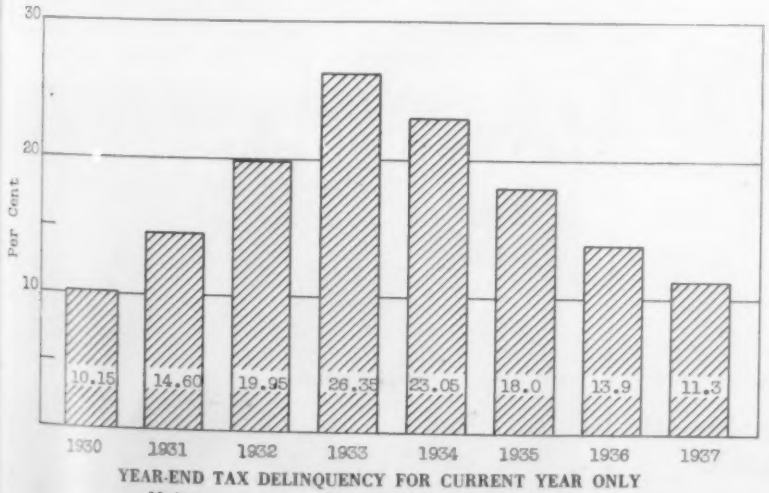
"Again, by this test, a small group of cities is particularly outstanding for ability to collect taxes promptly. Twenty-two of the 131 showed an accumulated delinquency ratio of less than 20 per cent in 1937, compared with the median of 41.6 per cent. Abnormally high accumulations, ranging upward from 80 per cent, or more than twice the median accumulation, exist in only 22 of the 131 cities, the combination of large collections of tax arrears and reduction in current delinquency in the past two years having gone far in correcting a dangerous situation."

TOTAL OF TAXES FOR ALL YEARS UNCOLLECTED AT CLOSE OF 1937 FISCAL YEAR

As a ratio of the 1937 levy in various cities

City	%	City	%	City	%
Akron,Ohio	89.3	Highland Park,Mich.	56.6	Paterson,N.J.	61.2
Allentown,Pa.	50.4	Holyoke,Mass.	28.3	Pawtucket,R.I.	41.6
Asheville,N.C.	106.2	Houston,Texas	41.6	Philadelphia,Pa.	49.1
Atlantic City,N.J.	87.4	Irvington,N.J.	35.0	Pittsburgh,Pa.	79.5
Augusta,Ga.	15.2	Jackson,Mich.	97.5	Pontiac,Mich.	217.5
Austin,Texas	46.2	Jacksonville,Fla.	125.9	Portland,Me.	11.3
Baltimore,Md.	16.3	Johnstown,Pa.	67.7	Pueblo,Colo.	68.6
Bayonne,N.J.	90.0	Kalamazoo,Mich.	17.9	Quincy,Mass.	34.8
Beaumont,Texas	103.9	Kansas City,Mo.	24.3	Racine,Wis.	79.7
Berkeley,Calif.	8.4	Kenosha,Wis.	44.6	Reading,Pa.	47.8
Bethlehem,Pa.	87.6	Knoxville,Tenn.	75.3	Richmond,Va.	21.5
Binghamton,N.Y.	6.0	Lancaster,Pa.	32.7	Roanoke,Va.	61.7[m]
Birmingham,Ala.	8.7	Lansing,Mich.	48.0[h]	Sacramento,Calif.	9.9[i]
Boston,Mass.	49.4[a]	Lawrence,Mass.	27.4	St.Louis,Mo.	32.9[b]
Bridgeport,Conn.	34.6[a]	Lincoln,Neb.	33.0[i]	St.Paul,Minn.	53.5
Brockton,Mass.	31.3	Long Beach,Calif.	23.4	Salt Lake City,Utah	17.4
Buffalo,N.Y.	19.2	Los Angeles,Calif.	22.4	San Antonio,Texas	131.0[n]
Cambridge,Mass.	37.1	Lowell,Mass.	66.3	San Francisco,Calif.	5.7
Canton,Ohio	78.3	Lynn,Mass.	41.4	Savannah,Ga.	23.5
Charleston,S.C.	41.7	Macon,Ga.	44.0	Schenectady,N.Y.	15.5
Charlotte,N.C.	47.6	Malden,Mass.	46.1	Scranton,Pa.	86.8
Chattanooga,Tenn.	43.8	Manchester,N.H.	17.8	Seattle,Wash.	66.0
Chester,Pa.	78.2	Medford,Mass.	54.8	Shreveport,La.	66.0
Cincinnati,Ohio	18.1	Memphis,Tenn.	56.7	Somerville,Mass.	47.9
Cleveland,Ohio	52.9	Miami,Fla.	57.7	Spokane,Wash.	35.3
Cleveland Hgts.,Ohio	77.9[b]	Milwaukee,Wis.	38.0	Springfield,Mass.	21.9
Covington,Ky.	30.0[b]	Minneapolis,Minn.	40.8	Syracuse,N.Y.	45.0[c]
Dallas,Texas	29.0[c]	Mobile,Ala.	16.4	Tampa,Fla.	149.4[n]
Dayton,Ohio	80.4	Montgomery,Ala.	34.1[a]	Toledo,Ohio	83.8
Dearborn,Mich.	58.2	Mount Vernon,N.Y.	38.3	Trenton,N.J.	82.3
Denver,Colo.	13.9	Newark,N.J.	46.3	Troy,N.Y.	39.9
Detroit,Mich.	81.2[d]	New Bedford,Mass.	35.4	Union City,N.J.	72.9
Durham,N.C.	26.4[e]	New Britain,Conn.	23.4	Utica,N.Y.	21.1
East Orange,N.J.	23.4	New Haven,Conn.	26.6	Waterbury,Conn.	29.8
Elizabeth,N.J.	77.2	New Orleans,La.	41.0[k]		
El Paso,Texas	106.4[e]	New Rochelle,N.Y.	41.4	Wheeling,W.Va.	39.9
Erie,Pa.	92.6	Newton,Mass.	23.7	Wichita,Kan.	20.0[q]
Fall River,Mass.	38.1	New York,N.Y.	37.3	Wilmington,Del.	21.0[i]
Flint,Mich.	73.6[f]	Niagara Falls,N.Y.	20.9	Winston-Salem,N.C.	18.1[i]
Glendale,Calif.	25.0[f]	Norfolk,Va.	145.2		
Grand Rapids,Mich.	90.0[g]	Oakland,Calif.	12.8	Worcester,Mass.	27.4
Greensboro,N.C.	25.2	Oklahoma City,Okla.	10.0[i]	Yonkers,N.Y.	58.3
Hammond,Ind.	79.0	Omaha,Neb.	52.9[i]	York,Pa.	19.6
Harrisburg,Pa.	10.0	Pasadena,Calif.	25.1	Youngstown,Ohio	110.8
Hartford,Conn.	13.2	Passaic,N.J.	92.6		

a. - as of 5-31-37.
b. - 1932-37.
c. - 1930-37.
d. - as of 5-1-37.
e. - as of 8-1-37.
f. - as of 10-1-37.
g. - as of 7-1-37.
h. - as of 9-1-37.
i. - as of 11-1-37.
k. - 1929-37.
l. - 1931-37.
m. - as of 12-31-37.
n. - as of 1-15-38.
q. - 1933-37.



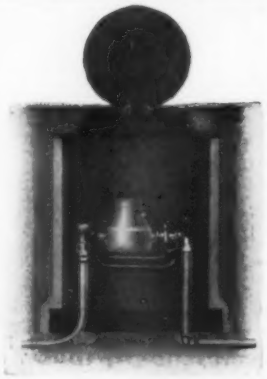
YEAR-END TAX DELINQUENCY FOR CURRENT YEAR ONLY

Median percentage for 150 cities of over 50,000 population

MODERATE CLIMATE SETTINGS for WATER METERS

Ford Yokes and Type X Meter Box Covers make an ideal combination for meter pits in moderate climates.

They assure proper protection for the meter and maximum convenience in meter reading and changing.



WATER METER QUALITY EQUIPMENT

FORD METER BOX CO.

SETTING and TESTING EQUIPMENT for WATER METERS

WABASH, IND., U.S.A.

NOW is the time to worry about chlorinating your swimming and wading pools—

Alert officials are already making summer plans. Taking a chance on the contagion which may easily result from use of unsterilized swimming and wading pools is just plain "dumb-foolishness"—especially since %Proportioneers% have pointed the way to low priced hypo-chlorination.

Write us NOW—the size of your pool, method of filling, and chemical or chemicals you intend to use.

Heavy Duty Midget Chlor-O-Feeder

% PROPORTIONEERS, Inc. %

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99 Codding Street Providence, R. I.

IN WATER PLANTS

Raw Water Aeration
Quick Chemical Mixing
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Activated Sludge Aeration
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Mixing For Chemical Precipitation

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A type and capacity to fit every existing or contemplated plant.

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Cast Iron Pipe

PLAIN CAST OR SPUN CENTRIFUGAL

Cast Iron Pipe and Special Castings, Bell and Spigot, Flange, Flexible Joint, Culvert, Milled and Plain End Tubes, Cylinders, Flanged and Bell and Spigot Fittings, High Pressure Fire Service Pipe, Warren Short Body Specials, Threaded End Pipe.

Size 2 to 84-inch

Pipe manufactured in accordance with standard specifications adopted and approved by water works associations and engineers.

Warren Foundry & Pipe Corp.
11 Broadway, New York City

Warren Pipe Co. of Massachusetts
75 Federal Street, Boston, Mass.

HOMELITE PORTABLE
Pumps-Generators-Blowers

Real handy equipment for all types of work.

Pumps—centrifugal type, self-priming, automatic, rugged—come in two sizes. 2" pump handles 8,000 gals. per hour—weighs 79 lbs. 3" pump handles 15,000 gals. per hour—weighs 91 lbs.

Generators—gasoline engine driven—come in two sizes. 1250 watt model weighs 86 lbs. 650 watt size weighs 71 lbs.

Blowers—weigh only 70 lbs. complete—deliver up to 2,000 cu. ft. of air.

All HOMELITES come complete with built-in gasoline engine. Write for bulletins.

See complete advertisement in 1938 Municipal Index.

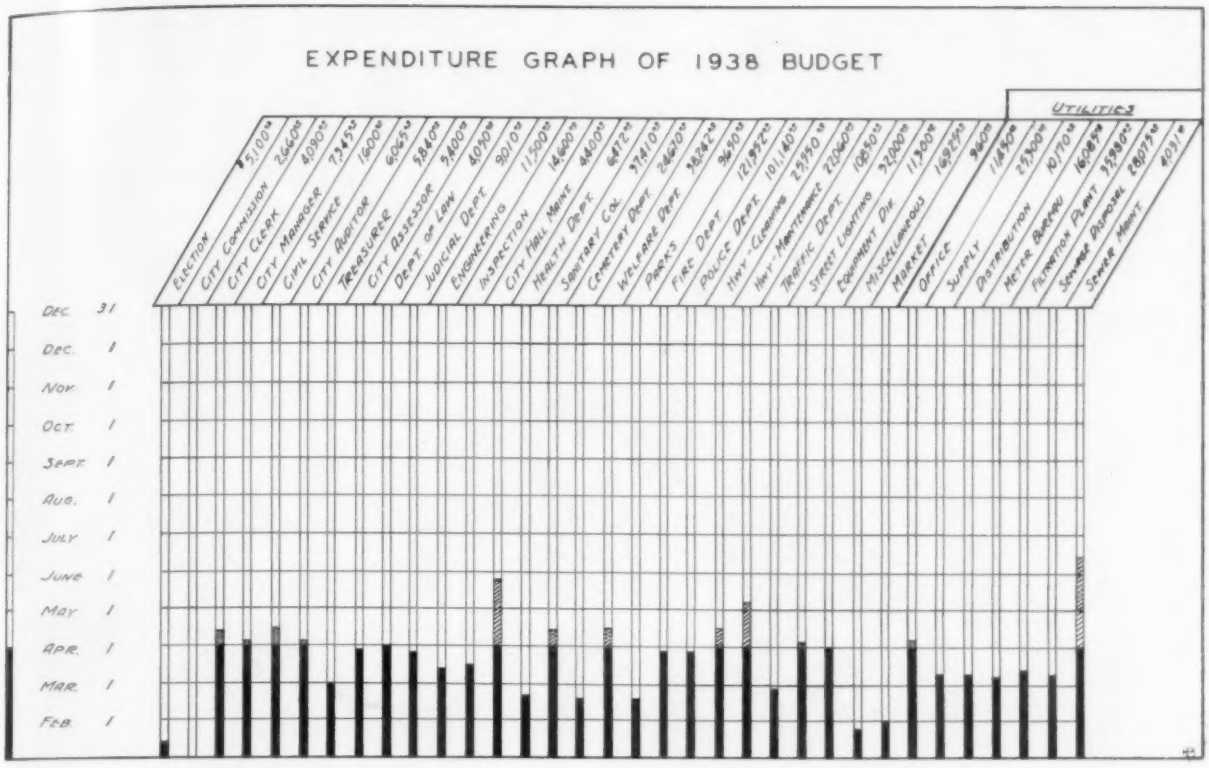
HOMELITE CORPORATION
206 Riverdale Ave. Port Chester, N. Y.

MH HYDRANTS

M. & H. VALVE & FITTINGS CO.
Anniston, Alabama

Compression Type—main valve remains closed if hydrant is broken off
Drain Valve Automatic in operation as main valve closes
Dry Top—Revolving Head permits facing of nozzles in any direction
Leak-Proof
Bronze-Mounted

BOOKLET



Graphs Used to Direct City Activities

IN an item appearing in *Public Management* for March, 1938, Carl H. Peterson, City Manager of Muskegon, Mich., told of the use of charts in his office to show current trends in municipal finances and in the operation of every activity. As the item was not illustrated, Mr. Peterson has had numerous requests for specimens. He has sent three of them to THE AMERICAN CITY, one of which is here reproduced. In explaining the use of this graph Mr. Peterson writes:

"The Expenditure Graph is made up of the expenditures of the budget as estimated, divided into 12 different parts. It does not work out that one-twelfth of the budget is used up each month, because some items are seasonal and might be all used up in one or two months, but when the end of the year comes, it would level off so that it would be within the budget. On the left is a column that gives the period this report covers. Every budget item that is below this line indicates an amount under the budget estimate for the period. Everything over this line represents the overexpenditure. When these charts are presented to the City Commission a sheet is attached telling exactly why these funds have been overspent."

Selling a Police Telephone Number Where There Are Two

OUR regular switchboard police telephone number in Boston is Kenmore 6700, which consists of 17 trunk lines. This board connects with all the units, bureaus, divisions, and offices of the Department. When anybody rings this number, it is answered in the Bureau of Operations, which handles the police communication system, consisting of two-way radio, teletype, telephone, etc.

In Boston there is a *special* polic emergency number, Devonshire 1212, which has five trunk lines, with an operator in constant attendance. The Police Commissioner has sponsored a campaign to bring to the attention of the people this number, Devonshire 1212, which should be called in an emergency.

There are 77 police cars and three police boats fully equipped with two-way radio telephone system. Police automobiles are moving through all parts of the city, day and night. Any part of the city can be reached by the police in a very few moments. A moment in an emergency may mean the saving of life or earnings of a lifetime.

Frequently, in an emergency, people call the regular telephone number of Police Headquarters, rather than the emergency number. Frequently they call this number and then ask for the local station or precinct. When this connection is completed, they give the information. The local station or precinct then has to call the Bureau of Operations and ask that the emergency message be sent over the radio.

The campaign of correction includes the Boston daily papers, theaters, students, the Boston Elevated Railway Co., department stores, manufacturing and other business concerns.

The number is being displayed on eighty large billboards in various parts of the city. All traffic police boxes are posted with the information. The police safety education car which transmits information through a loudspeaker in various parts of the city is taking an active part in the campaign. Ten thousand stickers have been placed on taxicabs and private automobiles.

JOSEPH F. TIMILTY,
Police Commissioner, Boston, Mass.

For List of Police Chiefs and Fire Chiefs in Places of Over 10,000 Population, See THE MUNICIPAL INDEX FOR 1938 Pages 537-541

A *Salute* TO AMERICA'S SAFEST CITIES!

For their notable achievement in winning highest honors in the Sixth National Traffic Safety Contest, we salute—

MEMPHIS, TENN.

Grand Prize Winner

MILWAUKEE, WISCONSIN
BEAUMONT, TEXAS
EVERETT, WASHINGTON
HARTFORD, CONNECTICUT
SACRAMENTO, CALIFORNIA
DES PLAINES, ILLINOIS

First Prize Winners

TO these, America's safest cities — to the cities winning second and third prizes and honorable mention — and to the 113 cities in the special Honor Roll, we offer our sincerest congratulations. The splendid records in traffic safety established by your enforcement officials and police officers is a great source of inspiration to every American city and to all organizations and individuals interested in accident prevention and the saving of human lives.

HARLEY-DAVIDSON MOTOR CO.
MILWAUKEE, WISCONSIN

★ It is significant that Harley-Davidson Police Motorcycles are used by all these first prize winning cities except Des Plaines.

Harley-Davidson

THE POLICE MOTORCYCLE

During June we hope you will remember to mention THE AMERICAN CITY.

Prepared by
FRANK B. WILLIAMS
Author of "The Law of
City Planning and Zoning"

Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning" and of
"The Master Plan"

Parking Lots

ILLINOIS.—*City of Chicago v. Ben Alpert, Inc.*, 13 N. E. 2d, 987 (Supreme Court, February 17, 1938).—A statute authorizing cities to direct the location and regulate the use and construction of public "garages" authorized the city to require a license for the operation of open-air parking lots.

Dedication

MICHIGAN.—*Olsen v. Village of Grand Beach*, 276 N. W. 481 (Supreme Court, December 14, 1937).—Property owners in a platted addition which was subsequently embraced within village limits could acquire no rights in platted streets, as against the village, by adverse possession.

Where certain stub ends of these streets could not easily have been used for vehicular purposes, the expenditure of money in the care of the main portions of the streets indicates an intent by the village to accept the dedication of the streets in the entire plat, although little work was done on the stub ends after dedication. Where purchasers in this addition had full knowledge of the existence of these platted streets dedicated to the public, the failure of the public to use the streets as such over a period of many years while property owners set out trees and shrubs, seeded portions of the streets, and buried an oil tank under the street, did not estop the village from subsequently claiming the right to use the street.

EDITOR'S NOTE.—In the early part of its decision the Court calls attention to the fact that the corporation which dedicated the streets is not a party to the suit, nor is there any evidence of an attempted revocation of the dedication, before it could be successfully maintained that it had been accepted; as otherwise the decision might well have been different.

Non-Conforming Use—Enlargement

MICHIGAN.—*Austin v. Older, City Engineer*, 278 N. W. 727 (Supreme Court, April 4, 1938.—The plaintiff Austin, owner of a non-conforming filling station in a residential zoning district, asked for and was refused, under the terms of the zoning ordinance, a permit to make structural changes and an addition to his station, necessary to modernize it. Plaintiff contends that the changes sought are needed to enable him to keep up with modern trends; that if he does not do so, competition will force him out of business; so that a denial of the permit is virtually a refusal to allow him to exercise his right to continue his non-conforming use. Assuming that there is merit in this claim, it brings up for determination the question whether or not the city may constitutionally prohibit a commercially necessary enlargement of a non-conforming business structure.

The power to zone is not limited to a protection of the status quo, and the city may validly plan its future development. Certainly the maximum benefit of zoning ordinances cannot be obtained as long as non-conforming businesses remain within residential districts, and their gradual elimination is within the police power.

An ordinance requiring an immediate cessation of a non-conforming use may be held to be unconstitutional* because it brings about a deprivation of property rights out of proportion to the public benefit obtained, but an ordinance prohibiting the enlargement of a non-conforming building is not subject to the same infirmity. This more limited restriction on the owner's rights in the use of his property is within the police power, and such ordinances have been held valid.

Even though through normal business competition the denial of the permit may eventually cause plaintiff's property to be of little or no value† for the sale of gasoline, he still may use it for purposes permitted by the zoning ordinance. It is true that he as well as others in the restricted zone may be deprived of some property rights, but the due process clause does not prevent a valid exercise of the police power.‡ In *State v. Hillman*, 110 Conn. 92, 147 Atl. 294, 299, an ordinance was upheld which provided that a building devoted to a non-conforming use in a restricted area could not be rebuilt when destroyed by fire to more than 50 per cent of its value. There is but little difference between the application of the principles underlying the zoning law to the case of destruction of a business by fire or to a similar destruction by obsolescence or competition.

* See on this subject, however, Bassett: "Zoning," p. 112.—EDITOR.

† But the privilege over a considerable period of time of making a use of property in a given locality, when competitors are not allowed to do so, has probably been a valuable one.—EDITOR.

‡ For a fuller statement on this subject, see Williams: "Law of City Planning and Zoning," p. 18.—EDITOR.

Planning Commissions—Regulation of Subdivision

NEW JERSEY.—*Mansfield and Swett, Inc., v. Town of West Orange*, 198 Atl. 225 (Supreme Court, March 28, 1938).—The plaintiffs, Mansfield and Swett, Inc., contracted to purchase a tract of land 4½ acres in extent, and for it prepared and presented to the Town Board of Commissioners for approval a survey and map showing its proposed subdivision into nineteen lots, with two streets. The land is located in a "residential" zoning district in the town of West Orange; and it is proposed to erect on it nineteen dwelling houses ranging in cost from $15,000 to $18,000 each. The neighborhood consists of estates of from one to five acres each, and contains only one building, a mansion valued at from $50,000 to $75,000.

In accordance with the ordinance adopted pursuant to the state enabling act authorizing the creation of planning boards and giving them authority to adopt a master plan, and regulations governing the subdivision of land, approve plats showing new streets, fix the minimum size of lots, and establish building lines, the municipal body referred the plat to the planning board for its recommendations. That body, after a public hearing, disapproved the plat.

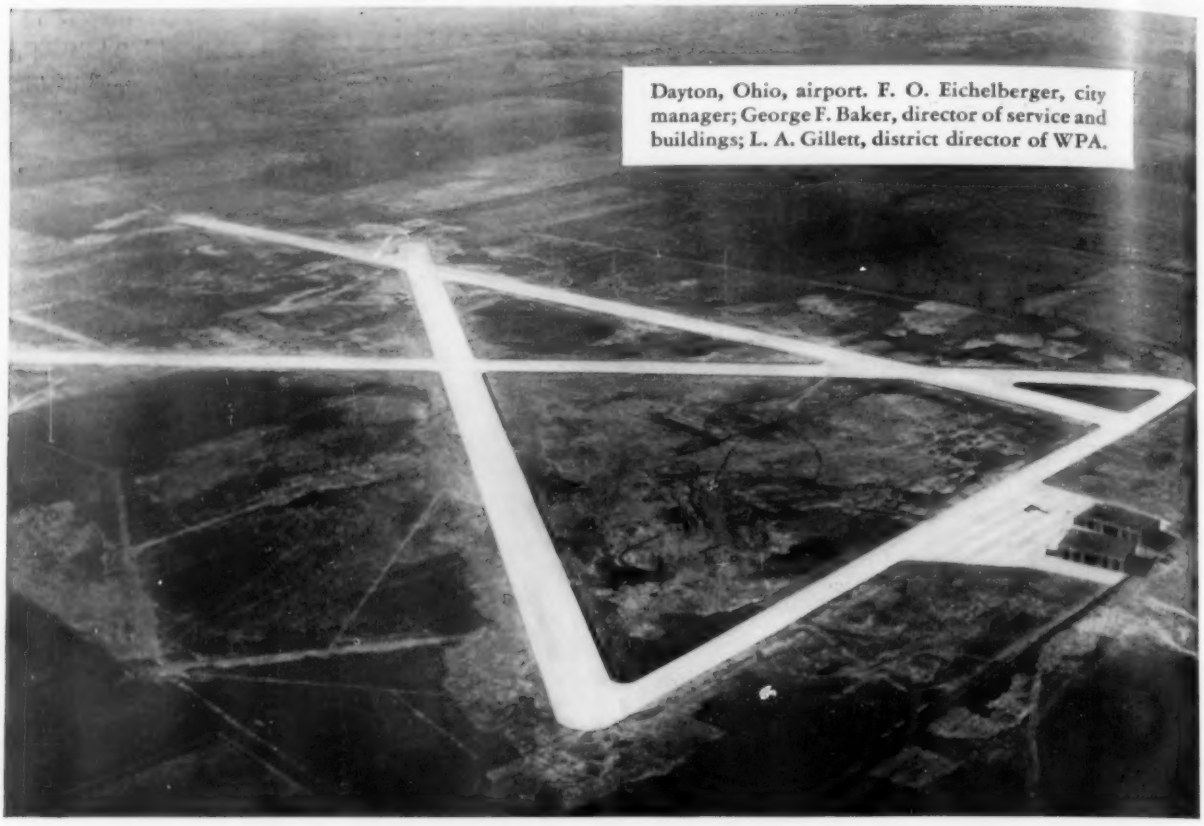
Of the many questions involved in this case, the one of most general interest is the constitutionality, as a whole, of the planning enabling act. Formerly, zoning was held, by the New Jersey decisions, to be outside the general police power of the state, and therefore unconstitutional; and, it is claimed, the analogy between zoning and planning is such that, under these decisions, planning also was unconstitutional. In order to make zoning enabling legislation valid, a zoning constitutional amendment was passed; but zoning is not planning, and planning, not being validated by that amendment, still continues to be unconstitutional.

This analogy the Court refuses to accept. Although municipal planning embraces zoning, the converse of this proposition does not hold true. Zoning is a separation of the municipality into districts, and regulation of structures in the districts so created in accordance with their construction and the nature and extent of their use. Planning is a term of broader significance. It connotes a systematic development contrived to promote the common interest in matters that have from the earliest times been considered or embraced within the police power.

The state preserves the inherent authority—it antedates the constitution—to resort, in the building and expansion of the community life, to such measures as may be necessary to secure the essential common material and moral needs; and a comprehensive scheme of physical development is requisite to community efficiency and progress.

In amplification of this general statement, the Court says, most significantly:

"The public health, safety, order and prosperity are dependent upon the proper regulation of municipal life. The free flow of traffic with a minimum of hazard of necessity depends upon the number, location, and width of streets, and their relation to one another, and the location of building lines; and these considerations likewise enter into the growth of trade, commerce, and industry. Housing, always a problem in congested areas affecting the moral and material life of the people,



Dayton, Ohio, airport. F. O. Eichelberger, city manager; George F. Baker, director of service and buildings; L. A. Gillett, district director of WPA.

Greater safety aloft when the airport below is

CONCRETE

MILITARY or commercial, airports are all alike in this respect: effective flight operations absolutely require safe, convenient ground facilities. The obvious, logical answer is—aprons and runways of concrete.

Night or day, wet or dry, concrete is *safe*. Its gritty textured surface is non-skid yet doesn't damage tires . . . it is free from dust and dangerous flying particles . . . it provides exceptional visibility. Concrete's even surface and permanently set gradients eliminate pockets of standing water; provide good drainage without excessive crown.

Concrete is *economical*. It is moderate in first cost and low in maintenance . . . it stands up under heavy traffic, is unaffected by adverse weather. Concrete pavement can be accurately *designed* for given wheel loads and landing impacts with ample safety factors.

Let us help plan your new airport by sending free information sheets and the booklet, *"Concrete Makes a Modern Airport."*

TECHNICAL DETAILS OF A FINE JOB

Dayton, Ohio, airport built largely with WPA funds to include 4 concrete runways each 100 ft. wide and ranging in length from 2,400 to 4,000 ft. (Fourth runway, parallel to taxiway, not yet completed). Also 2 taxiways and apron surrounding hangars. Each runway is made up of 5 twenty-foot strips with tongue-and-groove construction joints between strips. Center 15 ft. of each strip is 5 in. thick, increasing to 7 in. at edge. Transverse expansion joints at 100-ft. intervals; no longitudinal expansion joints. An interesting feature is the inverted crown with water draining through 24-in. diameter inlets at 150-ft. intervals along center of each runway.

Send for Helpful Facts

PORTLAND CEMENT ASSOCIATION
Dept. A6-4, 33 W. Grand Ave., Chicago, Ill.

Please send me *"Concrete Makes a Modern Airport"* and information sheets.

*Name*_____

*Address*_____

*City*_____ *State*_____

is necessarily involved in both municipal planning and zoning. And it is essential to adequate planning that there be provision for future community needs reasonably to be anticipated. We are surrounded with the problems of planless growth. The baneful consequences of haphazard development are everywhere apparent. There are evils affecting the health, safety and prosperity of our citizens that are well-nigh insurmountable because of the prohibitive corrective cost. To challenge the power to give proper direction to community growth and development in the particulars mentioned is to deny the vitality of a principle that has brought men together in organized society for their mutual advantage. A sound economy to advance the collective interest in local affairs is the primary aim of municipal government."

Of the other matters contained in the decision, the following may be briefly noted:

A regulation maintaining the proper balance between collective and individual rights is ordinarily a legitimate exercise of the police power.

The effectuation of a principle and policy declared by the legislature can be confided to an agency created to administer the law in which the principle and policy is declared. A statute requiring the municipal planning board to adopt regulations governing subdivision of land did not require the board to formulate a uniform set of regulations governing subdivisions as a condition precedent to the board's decision upon all plans subsequently filed with the board, but merely required the board to adopt regulations outlining the general policy of the board.

The board's minutes recite that the rejection of the plan was due to its nonconformance with neighboring "developments," and the objection of the "greater number of property owners," owners of large estates, whose objections were based on esthetic considerations and the conviction that a development on this scale would depreciate their particular properties. The Court points out that this evinces a palpable misconception of the law. The standard is not the advantage or detriment of particular neighboring landowners, but rather the effect upon the entire community. Nor can the authority of the board be exerted to bar the ordinary use of property because repugnant to a particular class.

It may be added that a 4½-acre tract containing a single mansion house is not to be forever committed to that use because the lands in the immediate vicinage are devoted to a like purpose.

Eminent Domain—Zoning Variance

NEW YORK.—*Matter of City of Mount Vernon (Breslin)*, Supreme Court, Westchester County, Special Term, reported in *New York Law Journal*, March 30, 1938, p. 1548.

In 1926, for the purpose, later, of widening a street in the city of Mount Vernon, the city, under article 3 of the General City Law of the state, placed a new street line upon the official map. This case, however, is in no way concerned with the constitutionality of that law. Assuming it to be valid, all the zoning of front yards was related to that line. By the fixing of this line, the owners of property affected were not divested of title to land between the old and the new street line, nor was the city under any obligation to widen the street in accordance with the new line, or acquire the land between these lines; but was obligated to provide compensation to the property owners if and when the land was taken, with consequential damages, if any. Later, the owners of land at this point on the street built an apartment house on it, locating it so near the new line that, when the street was widened, the size of their front yard would be reduced below the size required by the zoning ordinance; the zoning authorities granting them a variance so to do.

Still later the land between the two lines was taken, thereby depriving the tenement house of the land in front of the new line which it had, up to that time, been using as a part of its front yard. The owners claim damages not only for the value of the land taken, but consequential damages, because the small court renders the property less valuable for apartment use. This claim the Court allows, overruling the objection of the city to consequential damages.

EDITOR'S NOTE.—The claim of the city would seem to be that the owners, having asked for and obtained the variance permitting them to locate their buildings as they did, were precluded from claiming consequential damages on account of the disadvantages of such a location. The decision of the Court is apparently that this variance, being granted under the police power, for the public good, did not bar the owners from obtaining any damage actually suffered.

Streets

PENNSYLVANIA.—*Presbyterian Hospital v. City of Philadelphia*, 198 Atl. 53 (Supreme Court, March 21, 1938).—In 1929, an ordinance provided for the widening of the street on which plaintiff's hospital was situated, and the taking of a strip of land, for the purpose, with a portion of a building standing on it. Then, instead of physically widening the street, the city leased the portion of the building taken, to one of the defendants.

Held, by the Court, that the maintenance of this structure by the city, in the bed of the street for which the city had taken the property, was an obstruction of a public highway and hence a public nuisance; that the city, in leasing the property instead of beginning con the property, acted in its propritary capac the resulting obstruction of access of the former owners of this strip to their adjoining property.

Queer Taxes in English History

Taxes to Bribe Invaders—Taxes on Windows, Hearths and Clocks

IN a 1938 publication of the National Association of Local Government Officers, of Great Britain, some of the crude and cruel methods of taxation of earlier times are described. To quote in part:

"It was a habit of some of our kings and queens to look upon taxes as their special prerogative, to be imposed at will and without the slightest regard to the sufferings of the country. Furthermore, the revenues were collected by a body of men called tax-collectors, whose dishonesty and brutality caused them to be looked upon with fear and loathing by simple folk. It was more than life was worth, however, to lift a hand against these men, because they took their orders direct from the king.

"Probably the first money tax ever to be made in England was imposed by King Ethelred the Unready, about the year 1015. The tax was called "Danegeld" and the money derived from it was used to bribe the invading Danes to leave the country. Unfortunately, the more the king bribed, the more eager the Danes were to return—a logical conclusion that Ethelred should have foreseen. . . .

"In the reign of William III, there was a tax on windows. A house with six windows went untaxed, but every window over six was brought into the scheme and charged according to its size and shape and according to the wealth of the occupant of the house. Two or more panes of glass in a sash were taxed and bay windows were a very heavy liability indeed. It was inevitable that people should evade their responsibilities by bricking up their windows, even at the risk of their health. However, the tax proved more or less successful from a monetary viewpoint and it was retained until 1851, by which time, presumably, fresh air and sunshine were recognized as of some importance.

"We have a property tax in England today which brings in some millions of pounds. But it started as something quite different! Right back in feudal times there was an unofficial property tax called "hearth money" which worked on the assumption that a man's wealth was indicated by the number of fireplaces in his house.

"George III's reign, apart from the ill-conceived stamp duties which lost us America, was noteworthy for a tax imposed on watches and clocks in 1797. As watches and clocks were just passing the 'luxury' stage and entering the 'necessity' stage, the tax was very unfortunate and nearly ruined the industry."

THIRSTY CALCIUM CHLORIDE FLAKES *Stop* THE DUST NUISANCE

CALCIUM CHLORIDE FLAKES AS THEY COME OUT OF MOISTURE PROOF BAG
24 MINUTE EXPOSURE TO AIR
48 MINUTE EXPOSURE TO AIR
JUST 3 HOURS OUT OF MOISTURE-PROOF BAG

MOST street and road officials know that calcium chloride binds road surfaces with moisture—that it prevents dust and aids compaction of surface materials.

Many, however, have never observed this moisture-absorbing, self-liquefying process in action. So we show, at the left, many times magnified, just how a flake of calcium chloride does its work. Each tiny flake attracts and holds for months, several times its own weight in water. The average season's requirement of two applications, 1½ and ½ pound per square yard, contains in its 2 pounds about 28,400 flakes—28,400 of these drops of moisture for every square yard of surface. Each of these drops extends its binding film around hundreds of particles of fine binder soil, which, in turn, holds coarser gravel and stone in a vise-like grip. So it is the cleanest, most effective dustlayer known.

Actually Pays for Itself In Maintenance Savings

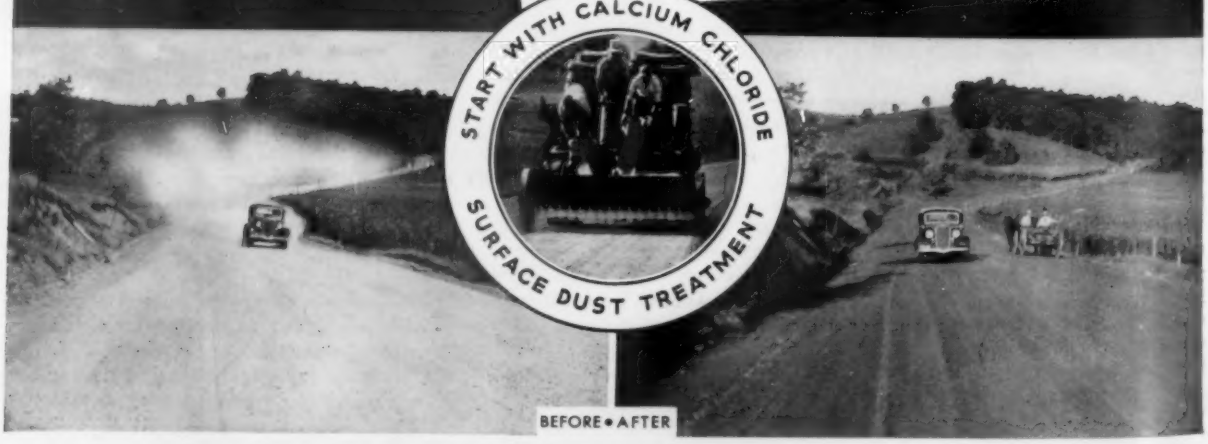
Dustlaying and road surface consolidation with calcium chloride is not a luxury, though it seems mighty luxurious to dust covered residents and motorists. It is, in fact, a real economy through its saving of surface material and its reduction in maintenance cost.

Dustproofing of road surfaces with calcium chloride is only the beginning of its benefit in road improvement. By adding either fine binder soils or coarser aggregates needed to bring necessary stability into the soil composition of your roads, you can build up layer after layer, year after year, the finest dustless roads it is possible to build without expensive paved surfacing.

Several states, many counties and thousands of townships, villages and cities maintain their gravel, stone and shell roads with calcium chloride. You can do it too. Just write for literature.

CALCIUM CHLORIDE ASSOCIATION
4145 Penobscot Building, Detroit

FREE SAMPLE *for observation mailed on request.*



The City's Legal Rights and Duties

Conducted by A. L. H. STREET, Attorney at Law

Accidents

City held not liable for injury to pedestrian falling into coal-hole left uncovered by contractors, unless condition existed so long as to charge city with notice of danger (Kansas City, Mo., Court of Appeals: *Hunt v. Kansas City*, 114 S. W. 2d, 153).

Where charge was made for use of city fire truck in fighting fire outside city limits, city held liable for injury resulting from negligent operation of truck (Oklahoma Supreme Court: *City of Sand Springs v. Gray*, 77 Pac. 2d, 56).

City held not liable for injury to motorists when automobile struck rocks along but outside highway, although no barrier or boundary marks were maintained (Maryland Court of Appeals: *Birckhead v. Mayor and City Council of Baltimore*, 197 Atl. 615).

Pedestrian held not entitled to recover damages for fall on pavement rendered slippery by mud if sidewalk paralleling street was fit for use (Kansas City, Mo., Court of Appeals: *Brolin v. City of Independence*, 114 S. W. 2d, 199).

Bond Issues

Power to issue bonds for a certain purpose held not to require all to be issued at one time. Five years' delay in exercising authority held not fatal (Texas Supreme Court: *City of Houston v. McCraw*, 113 S. W. 2d, 1215).

Statute limiting to 20 days from publication of election resolution and statement time for contesting validity of electric bond issue held constitutional (Tennessee Supreme Court: *Tennessee Electric Power Co. v. Mayor and Aldermen of Town of Fayetteville*, 114 S. W. 2d, 811).

Attorney General held to have improperly disapproved city bond issue on ground that ad valorem tax levy required therefor would leave insufficient revenue under levy for current expenses, where city could use other stable sources of revenue for current expenses (Texas Supreme Court: *City of Houston v. McCraw*, 113 S. W. 2d, 1215).

Business Regulations

Ordinance fixing minimum prices for cleaning and dyeing, and making violation a misdemeanor, held invalid and not sustainable as tending to increase employment and avoid unfair trade practices (California District Court of Appeal: *Ex parte Herrick*, 77 Pac. 2d, 262).

Civil Service

Demotion held within statute forbidding "removal" of a police officer or fireman without written charges and opportunity for hearing thereon (Pennsylvania Supreme Court: *Simmler v. City of Philadelphia*, 198 Atl. 1).

Contracts

City held liable to water-works contractor for breach of contract where it abandoned a PWA project and awarded a contract to another contractor (United States Circuit Court of Appeals, Fifth Circuit: *City of Del Rio v. Ulen Contracting Corp.*, 94 Fed. 2d, 701).

Council held powerless to delegate to mayor authority to bind city by contract not approved or ratified by the council (Oklahoma Supreme Court: *Blumenauer v. Kaw City*, 77 Pac. 2d, 1143). But a contract made by a mayor, even without authority of the council, was held to have been ratified when city adopted benefits of the contract (Arkansas Supreme Court: *Day v. City of Malvern*, 114 S. W. 2d, 459).

Where municipal construction contract forbade subletting of work without city's consent, subcontractor held without claim against city for delay in furnishing site for work, although city knew that work had been sublet (Texas Commission of Appeals: *City of Dallas v. Shortall*, 114 S. W. 2d, 536).

Council Proceedings

Under doctrine that silence gives assent, held that where four councilmen were present, three constituting a quorum, an official vacancy was validly filled by a vote of two, the other two not voting, although they had previously expressed opposition to the motion (California District Court of Appeal: *Martin v. Ballenger*, 77 Pac. 2d, 888).

City commissioner having voted on resolutions before board without complaint that they had not been read in full, as required by statute, or that he did not understand them, held not entitled to question the validity of the resolutions because they were not read in full (New Jersey Supreme Court: *Murphy v. Ellenstein*, 197 Atl. 664).

Drainage

Town held liable for casting upon land through highway culvert, in body, water that would have been diffused over land if natural course of surface drainage had not been disturbed (New Mexico Supreme Court: *Rix v. Town of Alamogordo*, 77 Pac. 2d, 765).

Elections

Election of mayor held not vitiated by omission from ballot of instructions to voters provided for by statute where the omission could have been corrected before the vote was cast (Ohio Supreme Court: *Mehling v. Moorehead*, 14 N. E. 2d, 15).

Employees' Wrongs

City held not liable for wrongful killing by its automobile inspector while discharging his duties, on theory of employment of vicious person, failure to require bond of him, or ratification of his wrong (Mississippi Supreme Court: *Bates v. City of McComb*, 179 So. 737).

City held not liable for acts of its inspector and others in demolishing house, etc., under orders of the County Health Officer (Oklahoma Supreme Court: *City of Okmulgee v. French*, 77 Pac. 2d, 712).

Garbage Disposal

Modern garbage incinerator and transportation of refuse to it through the streets in careful manner held not to constitute a nuisance subject to injunction at the instance of nearby residents (Michigan Supreme Court: *Sommers v. City of Detroit*, 278 N. W. 767).

Official Bonds

City Treasurer's surety held not liable for loss of funds deposited in bank that failed, where city had designated bank as depository as provided by statute (United States Circuit Court of Appeals, Third Circuit: *City of Scranton v. Aetna Casualty & Surety Co.*, 94 Fed. 2d, 941).

Official Removals

Since an officer is removable only for official misconduct and not for acts going merely to his private character, held that a councilman was not removable because he belonged to a secret political society, the Black Legion (Michigan Supreme Court: *Wilson v. City of Highland Park*, 278 N. W. 778).

Ordinances

Ordinance unchallenged for 30 years held not voidable for irregularity in adoption (Colorado Supreme Court: *Handler v. City and County of Denver*, 77 Pac. 2d, 132).

Police Measures

One convicted repeatedly of gambling held guilty of vagrancy under ordinance defining a vagrant as one leading an idle, immoral or profligate course of life (Colorado Supreme Court: *Handler v. City and County of Denver*, 77 Pac. 2d, 132).

Under ordinance, one loitering in a gambling house held punishable as a vagrant without regard to whether he had lawful means of support (Ohio Court of Appeals, Lucas County: *City of Toledo v. Wagner*, 13 N. E. 2d, 136).

Prohibition of distribution of handbills in streets, excepting permitted notices of meetings of citizens' organizations, upheld (Massachusetts Supreme Judicial Court: *Commonwealth v. Kimball*, 13 N. E. 2d, 18).

Ordinance forbidding distribution of "advertising matter" on streets held not to cover distribution of newspapers (Pennsylvania, Court of Quarter Sessions, Montgomery County: *Commonwealth v. Ash*, 29 Pa. Munic. Rep. 142).

Public Utilities

Electric franchise granted company held not invalid because containing option in municipality to purchase plant within five years, even if municipality could not presently contract for purchase of the plant (Delaware Supreme Court: *Simon v. Town of Seaford*, 197 Atl. 681).

Sewers

Right of village to pollute stream by discharging sewage held not acquired, as against complaining riparian owners, through oral consent to pollution, particularly where new conditions were constantly arising (Illinois Appellate Court: *Eckart v. City of Belleville*, 13 N. E. 2d, 641).

City held liable for injury done by overflow of a sewer capacity of which was overtaxed by city's attempt to drain surface water through it (Iowa Supreme Court: *Wilkinson v. City of Indianola*, 278 N. W. 326).

That for many years city had discharged sewage into railroad company's canal did not create such prescriptive right in the city as to require the railroad to continue to maintain water in the canal (Virginia Supreme Court of Appeals: *City of Lynchburg v. Chesapeake & Ohio Railway Co.*, 195 S. E. 510).

Special Assessments

City held not liable to holders of special assessment bonds because, owing to real estate value shrinkage, special assessments did not yield enough to pay the bonds (Iowa Supreme Court: *Bankers Life Co. v. City of Emmetsburg*, 278 N. W. 311).

Streets

Statute and ordinance requiring street railroad to keep in repair, etc., space occupied by tracks held not to shift city's duty to public to keep streets in reasonably safe condition (Minnesota Supreme Court: *Phelion v. Duluth-Superior Transit Co.*, 277 N. W. 552).

City held not liable for disconnecting private water-supply lines laid under street to which it had fee simple title, the lines having been laid in violation of ordinances (Kentucky Court of Appeals: *Goodloe v. City of Richmond*, 113 S. W. 2d. 834).

Taxation

Office building nominally owned by charitable corporation held not exempt from municipal taxation where practically all its income accrued to corporation's grantor, a private corporation (Tennessee Supreme Court: *Odd Fellows B. & C. Assn. v. City of Nashville*, 114 S. W. 2d, 791).

Housing Authority corporation held municipal agency in such sense as to exempt its real and personal property from ad valorem taxation (Alabama Supreme Court: *In re Opinion of the Justices*, 179 So. 535).

Under statute permitting city to exempt from taxation personal property employed by "manufacturers" in their business, city held not entitled to exempt some manufacturers to the exclusion of others (Maryland Court of Appeals: *American Newspapers, Inc., v. McCardell*, 197 Atl. 574).

FORMULA FOR BOND-*BURNING* CEREMONIES

Bond-*burning* ceremonies crop out in the news. It's a fine American custom—pleasant comment by civic leaders and happy "asides" among the taxpayers—as the torch is held to the cancelled bonds. And the pavement still good for years of service!

* * * * *

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St. Paul, Minn., Virginia Ave., has completed a half-century of service. Neither weather nor traffic could best it. "It's still serviceable," says George M. Shepard, Chief Engineer, Dept. of Public Works of that city.

* * * * *

Baltimore, Md.—The oldest streets paved with brick still in use were put down 39 years ago, on a sand base. I rode over these early brick streets recently, and, considering that they were laid by builders of the abutting houses, I found them to be in good condition, except that the surfaces were somewhat wavy; but, no doubt, they will be used for a number of years to come.

I also inspected the first brick street laid on a concrete base by the City, under my supervision in 1901, around one of our public markets. Despite the heavy traffic, this street is in fair condition.—Frank K. Duncan, Asst. Chief Engr., Dept. of Public Works, Baltimore, Md.

A study of brick pavements in Des Moines by Iowa highway authorities concludes that service will average 36 years; Columbus, Ohio, reports over 500,000 square yards which has already averaged 45 years of service; records of individual pavements run still higher.

The costs of upkeep on brick pavements is very low—often ranges from negligible to nil. The reason: Brick resists damage from weather as well as traffic. As built today it gives a durably smooth, safe passage to any type of traffic. National Paving Brick Association, National Press Building, Washington, D. C.

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Taxation

Tax Relations Among Governmental Units.—Symposium conducted by the Tax Policy League, December 27-30, 1937. Tax Policy League, Inc., New York. 1938. vi+226 *pp.* $2.75.

As government becomes ever more complex, weighty problems of administration arise. Tax administration today is one of the saddest examples of an outmoded system. We once felt that it was logical for each governmental unit to raise its own revenues, but today, with more governments and more taxes, we see a deplorable duplication of effort and expense attributable to the confusion of intergovernmental tax relationships. The Federal Government, the 48 state governments and some 175,000 local tax-levying units are all raising revenues with no logical attempt to assign the work to those units which can function most efficiently. Taxes should be levied by governmental units capable of assessing and collecting them effectively, thus facing the present situation where some subordinate units cannot collect enough for their own expenses and have to receive aid from larger units.

This volume contains 16 papers on the problems of intergovernmental tax relationships by men who have had occasion to give serious thought to the matter. The papers are grouped under four headings: Federal-State Tax Relations; Interstate Tax Relations; Federal and State Aid; and State Control of Local Finance. The timeliness and overwhelming importance of this subject in view of our present difficulties makes this book well worth consideration by those in a position to bring about the much-needed reforms in our tax administration.

Better Sewage Works

An interesting article entitled "Better Sewage Works," by George B. Gascoigne, has been reprinted from *Sewage Works Journal*, March, 1938. In it Mr. Gascoigne analyzes the number of different interests involved in the location and construction of a sewage-disposal plant, and marvels that the results have been as good as they have. However, in the future, it would be well to eliminate the handicap of overlapping functions and provide for proper correlation of the functions of the many interests involved for the good of the individual plants and for sewage treatment as a whole. 8 pp. (Apply to *Sewage Works Journal*, 845 S. Wabash Ave., Chicago, Ill.)

Organization of Planning Work

The efficient community of today is the one which is learning to plan, to protect its present values and guide its future development. The most essential prerequisite to a planned development is an enlightened planning public opinion. Once that is stimulated, a planning authority and its machinery will be seen as essential to successful municipal administration and will be set up to do its work as part of an efficient representative government. A paper by W. Phillip Shatts entitled "Organization of Municipal Planning Work," gives some useful advice on the proper first steps for the community in planning activity. 9 pp. (Apply to the Regional Plan Association, 400 Madison Ave., New York.)

Location of Industry

As part of a study of the location of industry with special reference to Canada, McGill University has published "A Select Bibliography on Location of Industry," by Douglas Moore McDonald. The list presented is the result of persistent examination and evaluation of all traceable material published in the United States and Canada on the subject and a considerable amount from Great Britain. The references are carefully classified and should be helpful to both new and old students of this important subject. The location of industry today and tomorrow is closely bound up with the basic welfare of any country. 95 pp. 60c. (Apply to McGill University, Social Research Offices, 3466 University St., Montreal.)

Public Works

Public Works Engineers' Yearbook, 1938.—*American Public Works Association*, 1313 *E. 60th St., Chicago, Ill.* 1938. *viii* + 482 *pp.* $3.50.

The usefulness of this volume has been greatly extended over those of previous years by the inclusion of a comprehensive review of developments in the public works field during the past year. Part I of the book reviews for all levels of government the major events in public works programming, organization, personnel administration, budgeting and accounting, financial relationships between Federal, state and municipal governments, property tax limitations and gas tax revenues, in addition to an extensive treatment of the many technical phases of public works engineering. Part II of the volume is entitled "Current Problems in Public Works" and reports the discussions that took place at the 1937 Public Works Congress in Atlanta. In this section a number of selected technical and administrative problems are analyzed in detail.

Lighting Handbook

The Westinghouse Lamp Division of the Westinghouse Electric & Manufacturing Co. has issued a completely revised edition of its lighting handbook entitled "Artificial Light and Its Applications." The new edition is larger and more comprehensive than the old, containing new chapters on photometry, color, theater lighting, and sports and recreational lighting. The importance of artificial lighting in eyesight conservation is stressed in a discussion of the physiology of the eye and its reaction to light. This book should be valuable as a handbook for the engineer and a textbook for the student. 258 pp. 75c. (Apply to Westinghouse Lamp Division, Westinghouse Electric & Manufacturing Co., Edgewater Park, Cleveland, Ohio.)

Dams and Control Works

"Dams and Control Works" is a publication presenting a picture of this phase of the work of the Bureau of Reclamation of the Department of the Interior, which has constructed 138 dams since 1902 and is now directing the largest construction program in its history, including 21 additional dams. The discussion presented in this book is of a semi-technical nature, describing the more important and significant types of dams and the more interesting technical advances in design and construction. The two types known as storage dams and diversion dams are discussed separately in Parts I and II of the report. The final section, Part III, contains a group of special articles describing the experimental work being done by the Bureau which has resulted in the above-mentioned technical advances. 261 pp. $1.00. (Apply to the Government Printing Office, Washington, D. C.)

Chicago Recreation Survey

The Chicago Recreation Survey promises to be one of the most extensive studies of recreation ever made by a city. It is being sponsored by the Chicago Recreation Commission and Northwestern University, directed by Arthur J. Todd, William F. Byron and Howard L. Vierow, and conducted under the auspices of the WPA, the NYA and the Illinois Emergency Relief Commission. To date, two volumes out of the proposed four have been published. Volume I deals with Public Recreation, its planning and historical aspects, its administrative aspects, and its facilities and programs. Volume II covers Commercial Recreation, its scope and significance, its regulation and control, and its various separate forms. The subject matter is presented in great detail, and the volumes are plentifully illustrated with maps and charts. The final two volumes will be on Private Recreation and Recommendations of the Commission. The completed study should be an outstanding example of a comprehensive appraisal of the recreation facilities of a great city. Vol. I, 258 pp. Vol. II, 167 pp. $1.00 each. (Apply to the Municipal Reference Library, 1005 City Hall, Chicago, Ill.)

Physical Educational Facilities

Physical Educational Facilities for the Modern Junior and Senior High School.—By Herbert Blair. A. S. Barnes & Co., New York. 1938. *xii*+174 *pp.* $2.50 *from* THE AMERICAN CITY.

In this volume the facilities for a physical educational program in junior and senior high schools in four states are carefully analyzed for the purpose of determining to what extent they conform to the standards accepted as adequate by the educators. In the four states chosen, Massachusetts, New York, New Jersey and Pennsylvania, physical education is required by statute, and there is a state director of physical education, a state department for the approval of plans for school buildings, and a minimum time requirement for the physical education program. The detailed descriptions of the facilities, many illustrated with floor plans, and the conclusions drawn as to their adequacy or inadequacy, should be of considerable value to state departments of education and others connected with public physical education.

Traffic Engineering for Police

Traffic engineering should not be the concern of the police, since it is a highly technical subject relating to the design and layout of streets as well as traffic control equipment. The policeman's job is properly that of enforcement, not of engineering, although they are quite dependent upon each other. Nevertheless, many cities have burdened their police with the problem of making streets and boulevards physically safer instead of employing a traffic engineer who is properly equipped to do this job. Since this condition exists and must be recognized, a useful pamphlet has been published through the joint efforts of the National Conservation Bureau and the International Association of Chiefs of Police to instruct police officers in the rudiments of traffic engineering: "Traffic Engineering and the Police," by Harold F. Hammond and Franklin M. Kreml. The authors hope that it will not decrease but rather increase the efforts to secure trained traffic engineers on city staffs. 92 pp. Illustrated. Single copies to municipal and state officials on request. To others, 40c each. (Apply to National Conservation Bureau, 90 John St., New York.)

Municipal Finance Legislation

"Municipal Finance Legislation 1937, A Digest," by Irving Tenner of the Municipal Finance Officers' Association is the second bird's-eye view of a year of finance legislation issued by the Association, the first having covered 1935. The problems of improving the financial conditions of local governments through improving the administrative machinery and rounding up new sources of funds have been extremely perplexing to legislatures, and the comparison of the great variety of measures taken in different states is both interesting and constructive. A considerable amount of overlapping of acts within the states is disclosed as well as the increased unifying influence of the Federal Government on fiscal legislation through its grant-in-aid activities. 64 pp. $1.00. (Apply to Pub. Admin. Service, 1313 E. 60th St., Chicago, Ill.)

Regional Planning

The Regional Plan Association has published its second report of progress on the regional development of New York and its Environs in a volume entitled "From Plan to Reality, Two." The three chapters of particular significance are chapter I, summarizing the progress of the four- and eight-year periods ending January 1, 1937, with reference to subsequent progress; VII, describing what has been done in the way of organization for planning; and VIII, bringing out the world-wide interest in the planning being done in New York's metropolitan area. The remaining chapters contain factual matter which has already appeared in the periodical "Information Bulletins" of the Association. $2.00. (Apply to the Regional Plan Association, Inc., 400 Madison Ave., New York.)

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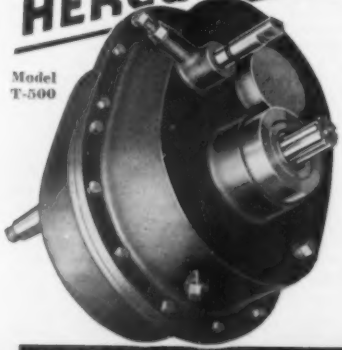

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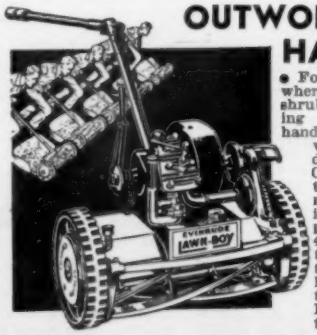

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Sewage and Garbage Disposal

THE MUNICIPAL INDEX has reprinted the particularly outstanding section of the 1938 edition on "Sewage and Garbage Collection and Disposal." During the summer of 1937, a comprehensive survey was made to determine the types of sewers and the methods of sewage treatment used in a representative group of cities in the United States. Returns on a questionnaire were received from 2,000 cities, and the information was tabulated for THE MUNICIPAL INDEX. An article entitled "Combined Sewage-Treatment Plants and Refuse Incinerators," by E. Sherman Chase, is also included in this reprint. 47 pp. $1.00. (Apply to THE MUNICIPAL INDEX, 470 Fourth Ave., New York.)

Overcrowding

One phase of "The National Health Survey: 1935-36" of the United States Public Health Service was a study of the "Adequacy of Urban Housing in the United States as Measured by Degree of Crowding and Type of Sanitary Facilities." The preliminary report on this subject has just been published as Bulletin No. 5 of the Survey. The large amount of tabular material presented in this report indicates a high degree of crowding among families in the 83 cities covered. It is estimated that 3,000,000 urban families in the United States have fewer rooms in their homes than there are persons, and in many cases there are at least twice as many persons as rooms. Also, 13 per cent of the urban households surveyed reported either the lack of inside "flush" toilets or their use jointly with other households. 13 pp.; tables. (Apply to the Division of Public Health Methods, National Institute of Health, U. S. Public Health Service, Washington, D. C.)

Community Forests

The community forest is an interesting combination of a conservation and revenue-producing project. A number of community forests have already yielded incomes of thousands of dollars to their local coffers. Unemployed have been put to work to improve timber stands, plant trees and harvest fuel and other timber products. It would undoubtedly be profitable to communities to turn their idle lands into tree production and keep men regularly employed to care for them as public revenue-producing enterprises, much as has been done in Europe for years. A new publication of the U. S. Forest Service entitled "Community Forests" outlines the present state of development of such enterprises in this country and its future possibilities. (Apply to the Forest Service, U. S. Dept. of Agriculture, Washington, D. C.)

The Black River

The Division of State Planning of New York, with the cooperation of the WPA and the National Resources Committee, is publishing a series of brief, condensed reports on the water resources of New York. The second in the series is entitled "The Black River" and analyzes the particular water problems of this river, which flows from the Adirondacks to Lake Ontario, and offers suggestions for their coordinated development and use. The Black River basin is particularly suited to clear and simple analysis since it does not flow through the most populous regions of the state, yet is outranked only by the Hudson in the magnitude and importance of its water resources. Also it has received an unusual amount of attention in the past as the first drainage area to be organized as a river regulating district. 49 pp.; 13 plates. (Apply to the Division of State Planning, 353 Broadway, Albany, N. Y.)

Democracy in the Modern World

The National Municipal League has started publication of a small pamphlet entitled "Democracy in the Modern World." It is to appear whenever there is news indicating a particular triumph for working democracy anywhere in the United States today. The first issue, for example, gives publicity to the defeat of Tammany Hall in the recent New York City election through the use of proportional representation. Toledo, Ohio, and Henrico County, Va., are written up for their recent tests of the city-manager and county-manager forms of government; the elections in both cases demonstrating approval of those forms. (Apply to the National Municipal League, 309 E. 34th St., New York.)

Healthful Housing

One of the most interesting and significant recent contributions to the housing field has been made by the Committee on the Hygiene of Housing of the American Public Health Association in a report entitled "Basic Principles of Healthful Housing." In making a systematic analysis of those factors of housing design and construction which must be provided to maintain acceptable standards of healthfulness, the Committee has both clarified our bases of evaluation of old housing in this respect and given public housing authorities some specific pointers to guide its new construction. No housing authority should be without this valuable study. 22 pp. 25c. (Apply to the American Public Health Association, 50 W. 50th St., New York.)

Tax Delinquency

A publication entitled 'The Trend of Tax Delinquency, 1930-1937, Cities Over 50,000 Population," by Frederick L. Bird, shows that in 1937 the collection of general property taxes in the average municipality continued to rise from the low point of the depression for the fourth consecutive year. The rate of progress, however, was somewhat slower in 1937 because of the business recession in the last few months. Municipal tax delinquency has become a widely used index of the condition of municipal finance. This is the seventh annual survey for cities over 50,000 population, and the information should be extremely useful if properly interpreted. 31 pp.; tables. (Apply to the Municipal Service Dept., Dun & Bradstreet, Inc., 290 Broadway, New York.)

Zoning Changes and Variances

The American Society of Planning Officials has published a brief bulletin on "Zoning Changes and Variances" as a preliminary toward further information on the subject. Figures are quoted for eight American cities on the number of zone and text changes made, and the number of variances granted over a series of years. In addition, several tables are included showing the relationship between actual land use and zoning. The number of zoning changes and variances does not necessarily indicate whether or not a city is well zoned or that the ordinance is being protected, but it does give some indication of how well zoning ordinances are being enforced. 7 pp. (Apply to the American Society of Planning Officials, 1313 E. 60th St., Chicago, Ill.

Highway Safety

The Committee on Safe Highways of the American Road Builders' Association has published a progress report entitled "Report of Problem Committee on Analysis of Accident Data." The design of a highway is definitely demonstrated to be a factor in the accident problem. The Committee points out what is being done to learn more about building safety into the highway as well as traffic control implementation. A large share of the report describes and illustrates a number of actual accident-prone locations and the corrective measures applied at those locations. Finally, the Committee gives its conclusions and recommendations. 27 pp. (Apply to the American Road Builders' Association, National Press Bldg., Washington, D. C.)

Gardens for Boys and Girls

The National Recreation Association made a particularly interesting issue of *Recreation* for March, 1938. It is a symposium of articles covering various phases of garden work for boys and girls, under the guest editorship of Ellen Eddy Shaw, of the Brooklyn Botanic Gardens. It is the initial report of a rather more extensive survey of garden interests for boys and girls, and the agencies conducting and supporting these educational projects throughout the country, which is being undertaken by the National Recreation Association. In regard to gardening in the child's education Miss Shaw says in her Foreword, ". . . out of a wealth of experience in this field of work through all the years since I left college, it still seems to me that the garden, properly used as a laboratory, and not only a laboratory but as a book of wisdom, is one of the greatest factors in education." 63 pp. 25c. (Apply to the National Recreation Assn., 315 Fourth Ave., New York.)

Pollution of a River Valley

"Sources of Pollution, Ten Mile River Valley" is a study which was carried out as a WPA state planning project sponsored by the Massachusetts Department of Public Health. It is a report on the investigation of the sources of domestic sewage and industrial wastes discharged into the Ten Mile River and its tributaries as it flows through the towns of Wrentham, Plainville, Mansfield, North Attleborough, Attleboro, Seekonk and Rehoboth in southeastern Massachusetts. In the interest of using the streams of Massachusetts for recreational purposes, this preliminary study may eventually be followed by studies of treatment works and the elimination of the pollution found in this area. 44 pp. (Apply to the Dept. of Public Health, 511A State House, Boston, Mass.)

Los Angeles Traffic Survey

The Automobile Club of Southern California has completed its "Traffic Survey, Los Angeles Metropolitan Area, 1937." Los Angeles, like many other cities, has found its street system inadequate and hazardous in meeting the tremendous growth in the use of the motor vehicle. Consequently, this physical plan for the betterment of street and highway conditions, based on a careful study of existing difficulties, has been drawn up and recommended by the Association. It is felt to be not unduly expensive to carry out, and if the plan is accepted, a more detailed arrangement for its financing will be suggested by the Association. 52 pp., tables, maps, and photographs. (Apply to the Automobile Club of Southern California, Figueroa St. at Adams, Los Angeles, Calif.)

Rural Electrification

Five out of six farm families throughout this country have been denied the economic and social advantages of electricity. Private utilities have insisted that it doesn't pay to provide electricity to farmers. The Rural Electrification Administration, created by Congress, has done a great deal to remedy this situation. In the "1937 Report of Rural Electrification Administration" it is stated that more than 200,000 farm homes have been wired or will be wired for electricity through REA loan projects. Local organization and cooperation for electrification has in many cases given whole areas a revitalized community life. The final test of the REA program is yet to come, however, for the loans are supposed to be self-liquidating, and amortization payments are just beginning to fall due. 135 pp. (Apply to the Government Printing Office, Washington, D. C.)

Other Reports Received

ATLANTA, GA.—Annual Report, City Comptroller, 1937. 102 pp.

BOSTON, MASS.—Annual Report, City Planning Board, 1937. 52 pp.

CHICAGO, ILL.—Annual Report, Treasurer, City of Chicago, 1937. 38 pp.

CHICAGO, ILL.—Annual Report, Police Department, Chicago, 1937. 23 pp.

CINCINNATI, OHIO.—"Municipal Activities, 1937," Annual Report, City Manager. 75 pp.

ERIE, PA.—Budget for 1938. 57 pp.

ERIE, PA.—Annual Report, Director, Department of Accounts and Finance, January 3, 1938. 59 pp.

MCPHERSON, KANS.—Annual Report, 1937. 40 pp.

MINNEAPOLIS, MINN.—"A Proposed Charter for the City of Minneapolis and Summary Outline Thereof." Commonwealth Club of Minneapolis. $1.00. 78 pp.

MINNEAPOLIS, MINN.—"Budget Facts and Financial Statistics of the City of Minneapolis for 1938." Issued by the Board of Estimate and Taxation. 44 pp.

NEW YORK STATE.—Annual Report, State Planning Council for the Division of State Planning. 1937. 145 pp.

PHILADELPHIA, PA.—Annual Report, Fairmount Park Art Association. 1938. 47 pp.

PROVO, UTAH.—Annual Report, City of Provo, 1937. 75 pp.

QUEBEC.—Municipal Statistics for the Civil Year 1936. 256 pp.

RICHMOND, VA.—Annual Report, Comptroller, Year Ended January 31, 1938. 117 pp.

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Conventions -- When and Where

(Figures in parentheses following the name of the convention city indicate the estimated attendance other than local)

Meeting is annual convention unless otherwise designated

JUNE 8-10.—ELMIRA, N. Y.
Conference of Mayors and Other Municipal Officials of the State of New York. (Mark Twain Hotel.) Exec. Sec., William P. Capes, City Hall, Albany, N. Y.

JUNE 8-10.—INTERNATIONAL FALLS, MINN.
League of Minnesota Municipalities. Exec. Sec., C. C. Ludwig, Univ. of Minnesota, Minneapolis, Minn.

JUNE 8-10.—STATE COLLEGE, PA.
Pennsylvania Sewage Works Association. (College Hotel-Nittany Lion.) Sec., L. D. Matter, Kirby Health Center, Wilkes-Barre, Pa.

JUNE 15-16.—BLOOMINGTON, ILL.
Illinois Association of Sanitary Districts. (Illinois Hotel.) Sec.-Treas., Earl R. DePew, 304 Unity Bldg., Bloomington, Ill.

JUNE 15-16.—MITCHELL, S. DAK.
League of South Dakota Municipalities. (Widmann Hotel.) Sec., Dr. G. R. Breckenridge, Univ. of South Dakota, Vermilion, S. Dak.

JUNE 16-18.—BALTIMORE, MD.
Eastern Association of Fire Chiefs. (Lord Baltimore Hotel.) Sec., Charles E. Clark, Box 217, Wayne, Pa.

JUNE 20-22.—MINNEAPOLIS, MINN.
National Conference on Planning. (Nicollet Hotel.) Joint annual conference of American Planning and Civic Association, American Society of Planning Officials and American City Planning Institute. Exec. Dir., Walter H. Blucher, American Society of Planning Officials, 1313 E. 60th St., Chicago, Ill.

JUNE 20-22.—HALIFAX, NOVA SCOTIA.
Canadian Public Health Association. Gen. Sec., Dr. J. T. Phair, Spadina House, Toronto, Ont.

JUNE 20-22.—ERIE, PA.
Pennsylvania State Association of Boroughs. Pres., Thomas F. Chrostwaite, Hanover, Pa.

JUNE 21-23.—BURLINGTON, VT.
New England Association of Fire Chiefs. (Hotel Vermont.) Sec., John W. O'Hearn, Watertown, Mass.

JUNE 22-24.—HAMILTON, N. Y.
Municipal Electric Utilities Association of New York State. (Colgate Inn.) Exec. Sec., L. C. Mountcastle, Freeport, L. I., N. Y.

JUNE 26-JULY 2.—SEATTLE, WASH.
Joint meeting. (Olympic Hotel.) *American Public Welfare Association.* Dir., Fred K. Hoehler, 1313 E. 60th St., Chicago, Ill. *National Conference of Social Work.* Gen. Sec., Howard R. Knight, 82 N. High St., Columbus, Ohio.

JUNE 26-30.—NEW YORK CITY.
National Education Association of the United States. (Pennsylvania Hotel.) Sec., Willard E. Givens, 1201 16th St., N. W., Washington, D. C.

JULY 25-28.—ALLENTOWN, PA.
Pennsylvania Chiefs of Police Association. Sec., F. B. Titus, Lansdowne, Pa.

JULY 26-28.—SARANAC LAKE, N. Y.
New York State Association of Chiefs of Police. (Hotel Saranac.) Sec.-Treas., R. W. Morris, P. O. Box 346, Geneva, N. Y.

AUGUST 13-20.—MEXICO CITY.
International Federation for Housing and Town Planning. Congress. Gen. Sec., Donald C. L. Murray, rue Cantersteen 47, Shell Bldg. 608, Brussels, Belgium. Mexican rep., Carlos Contreras, Ramos Arizpe No. 1, Mexico, D. F.

AUGUST 14-20.—EVANSTON, ILL.
National Institute for Commercial and Trade Organization Executives. (Northwestern Univ.) Sec., C. R. Miles, 836 First Nat'l Bank Bldg., Chicago, Ill.

AUGUST 15-18.—ST. PAUL, MINN.
Municipal Finance Officers' Association of the United States and Canada. (Hotel Lowry.) Exec. Dir., Carl H. Chatters, 1313 E. 60th St., Chicago, Ill.

AUGUST 17-19.—WHEELING, W. VA.
American Water Works Association—Central States Section. (Hotel Windsor.) Sec., E. P. Johnson, 418 Flannery Bldg., Station 13, Pittsburgh, Pa.

AUGUST 29-SEPTEMBER 1.—MINNEAPOLIS, MINN.
Illuminating Engineering Society. (Nicollet Hotel.) Gen. Sec., A. D. Cameron, 51 Madison Ave., New York.

AUGUST 29-SEPTEMBER 3.—ATLANTA, GA.
International Association of Fire Fighters. (Atlanta Biltmore Hotel.) Sec.-Treas., George J. Richardson, A. F. of L. Bldg., Washington, D. C.

AUGUST 31-SEPTEMBER 2.—ST. LOUIS, MO.
National Shade Tree Conference. (Coronado Hotel.) Sec.-Treas., L. C. Chadwick, Ohio State Univ., Columbus, Ohio.

AUGUST 31-SEPTEMBER 2.—TORONTO, ONT.
Ontario Municipal Association. (City Hall.) Sec.-Treas., H. L. Brittain, 137 Wellington St., W., Toronto, Ont.

SEPTEMBER 5-8.—TORONTO, ONT.
International Association of Chiefs of Police. (Royal York Hotel.) Exec. Vice-Pres., William P. Rutledge, 1313 E. 60th St., Chicago, Ill.

SEPTEMBER 6-9.—SANTA BARBARA, CALIF.
League of California Municipalities. Sec., Richard Graves, 223 City Hall, San Francisco.

SEPTEMBER 8-10.—VALLEY CITY, N. DAK.
League of North Dakota Municipalities. (Rudolph Hotel.) Exec. Sec., Myron H. Atkinson, City Auditor, Bismarck, N. Dak.

SEPTEMBER 12-13.—CASPER, WYO.
American Water Works Association — Rocky Mountain Section. (Townsend Hotel.) Sec.-Treas., B. V. Howe, 428 State Office Bldg., Denver, Colo.

SEPTEMBER 12-15.—BALTIMORE, MD.
International Municipal Signal Association, Inc. (Lord Baltimore Hotel.) Sec., Irvin Shulsinger, 7 E. 42d St., New York.

SEPTEMBER 12-13.—HOT SPRINGS, VA.
League of Virginia Municipalities. (Homestead Hotel.) Exec. Sec., Morton L. Wallerstein, 902 Travelers Bldg., Richmond, Va.

SEPTEMBER 13-16.—BOSTON, MASS.
New England Water Works Association. (Hotel Statler.) Sec., Frank J. Gifford, 613 Statler Bldg., Boston, Mass.

SEPTEMBER 14-16.—SAGINAW, MICH.
American Water Works Association—Michigan Section. (Bancroft Hotel.) M. N. Gerardy, Water Board Bldg., Detroit, Mich.

SEPTEMBER 14-15.—ROCKFORD, ILL.
Illinois Municipal League. (Hotel Faust.) Sec., A. D. McLarty, 500 E. Capitol Ave., Springfield, Ill.

SEPTEMBER 18-22.—MILWAUKEE, WIS.
American Institute of Park Executives. Exec. Sec., Will O. Doolittle, Box 422, Tulsa, Okla.

SEPTEMBER 22-23.—POUGHKEEPSIE, N. Y.
American Water Works Association—New York Section. (Nelson Hotel.) Sec.-Treas., R. K. Blanchard, 50 W. 50th St., New York.

SEPTEMBER 22-23.—MAMMOTH CAVE, KY.
The Kentucky Municipal League. (Mammoth Cave Hotel.) Exec. Sec., Carl B. Wachs, Municipal Bldg., Lexington, Ky.

SEPTEMBER 26-29.—BOSTON, MASS.
International City Managers' Association. (Hotel Statler.) Exec. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago, Ill.

SEPTEMBER 26-28.—MANHATTAN, KANS.
League of Kansas Municipalities. (Hotel Wareham.) Exec. Sec., John G. Stutz, Lawrence, Kans.

SEPTEMBER 29-OCTOBER 1.—MINNEAPOLIS, MINN.
American Water Works Association—Minnesota Section. Sec.-Treas., Ronald M. Finch, Wallace & Tiernan Co., Inc., 412 Flour Exchange, Minneapolis, Minn.

SEPTEMBER 29-30.—COLUMBUS, OHIO.
Ohio Conference on Sewage Treatment. (Fort Hayes Hotel.) Sec., B. M. McDill, Dept. of Health, Columbus, Ohio.

OCTOBER 2-7.—ST. PAUL, MINN.
American Prison Association. Congress. General sessions—Municipal Auditorium; Section meetings—Hotels St. Paul and Lowry. Gen. Sec., E. R. Cass, 135 E. 15th St., New York.

OCTOBER 3-5.—NEW YORK CITY.
American Public Works Association. (Hotel Pennsylvania.) Exec. Dir., Frank W. Herring, 1313 E. 60th St., Chicago, Ill.

OCTOBER 3-6.—TORONTO, ONT.
American Transit Association. (Royal York Hotel.) Gen. Sec., Guy C. Hecker, 292 Madison Ave., New York.

OCTOBER 3-7.—PITTSBURGH, PA.
National Recreation Association. (William Penn Hotel.) Administrative Sec., Thomas E. Rivers, 315 Fourth Ave., New York.

OCTOBER 5-7.—CHICAGO, ILL.
American Municipal Association. (Hotel La Salle.) Exec. Sec., Clifford W. Ham, 1313 E. 60th St., Chicago, Ill.

OCTOBER 6-7.—WASHINGTON, D. C.
American Water Works Association—Four States Section. Sec.-Treas., Carl A. Hechmer, Washington Surburban Sanitary District, Hyattsville, Md.

OCTOBER 6-8.—HARTFORD, CONN.
Joint meeting. (Hotel Bond.) *New England Sewage Works Association.* Sec., F. W. Gilcreas, State Dept. of Health, Albany, N. Y. *New York State Sewage Works Association.* Sec.-Treas., A. S. Bedell, State Dept. of Health, Albany, N. Y.

OCTOBER 9-11.—CHICAGO, ILL.
Institute of Traffic Engineers. (Stevens Hotel.) Sec.-Treas., H. F. Hammond, 60 John St., N. Y. C.

OCTOBER 10-14.—CHICAGO, ILL.
National Association of Public School Business Officials. (Palmer House.) Sec., H. W. Cramblet, Board of Education, Pittsburgh, Pa.

OCTOBER 10-14.—CHICAGO, ILL.
National Safety Council. (Stevens Hotel.) M'ng Dir., W. H. Cameron, 20 N. Wacker Drive, Chicago, Ill.

OCTOBER 12-14.—KEARNEY, NEBR.
League of Nebraska Municipalities. (Fort Kearney Hotel.) Sec.-Treas., C. E. Beals, 204 Brownell Bldg., Lincoln, Nebr.

OCTOBER 13-15.—DES MOINES, IOWA.
American Water Works Association—Missouri Valley Section. (Hotel Fort Des Moines.) Sec., Earl L. Waterman, Univ. of Iowa, Iowa City, Iowa.

OCTOBER 13-14.—MADISON, WIS.
League of Wisconsin Municipalities. Sec., Frederick MacMillin, 30 E. Johnson St., Madison, Wis.

OCTOBER 17-20.—OKLAHOMA CITY, OKLA.
American Water Works Association—Southwest Section. (Biltmore Hotel.) Sec.-Treas., Lewis A. Quigley, 3320 W. Berry St., Fort Worth, Texas.

OCTOBER 17-21.—WASHINGTON, D. C.
Civil Service Assembly of the United States and Canada. Exec. Dir., G. Lyle Belsley, 1313 E. 60th St., Chicago, Ill.

OCTOBER 19-21.—ATLANTIC CITY, N. J.
Pennsylvania Water Works Association. (Haddon Hall.) Sec., Dr. F. Herbert Snow, 327 Telegraph Bldg., Harrisburg, Pa.

OCTOBER 25-28.—KANSAS CITY, MO.
American Public Health Association. Exec. Sec., Dr. Reginald M. Atwater, 50 W. 50th St., New York.

OCTOBER 25-28.—KANSAS CITY, MO.
Conference of State Sanitary Engineers. Sec.-Treas., R. E. Tarbett, United States Public Health Service, Washington, D. C.

OCTOBER 26-29.—RIVERSIDE, CALIF.
American Water Works Association—California Section. (Mission Inn.) Sec.-Treas., Carl M. Hoskinson, Division of Water, Sacramento, Calif.

NOVEMBER 2-5.—NEW ORLEANS, LA.
International Association of Fire Chiefs. (Hotel Roosevelt.) Sec., James J. Mulcahey, 16 Franklin Ave., Yonkers, N. Y.

Wherever waste accumulates!
USE

EASY TO USE

At a touch—the swinging top opens and the waste drops from sight—then the top silently closes.

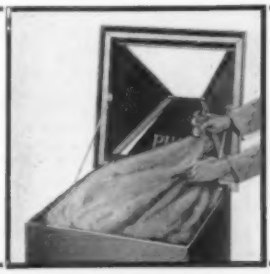
ATTRACTIVE

Solar Receptacles make it easy to "Deposit Waste Here." They help keep parks and streets neater and cleaner than ever before.

SOLAR Self-Closing RECEPTACLES

EASY TO EMPTY

To empty, simply tilt back the top and lift out the inner burlap bag or galvanized can. The bag or can is immediately emptied and returned.



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These all-steel Solar cans last a long, long time. They save cleaners' time, too, because wherever SOLARS are, litter is less. They invite use.

SOLAR-STURGES MFG. CO.
MELROSE PARK ILLINOIS
Write for circular.

Why Buy a MOWER that does but half the job?

The GRAVELY will work under every condition. The Power Driven Sickle Mower, illustrated, will cut everything . . . the rough places . . . spots where you've had to use hand scythes . . . even sprouts a full ½" thick . . . and a great big swath every time.

To this same tractor you can attach a 30-inch Reel Type Mower . . . two mowers for the price of one.

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Gravely Motor Plow and Cultivator Co.
Box 858 Dunbar, W. V.

USE G-E POLICE RADIO FOR BETTER PROTECTION

Give your city the *continuous* protection afforded by G-E police radio equipment—reliable, sturdily constructed, carefully engineered by an experienced leader in radio communication. Radio Department, General Electric, Schenectady, N. Y.

GENERAL ELECTRIC

MEDART
WATER SPORTS EQUIPMENT

Diving Towers

Slides

Springboards

Life Guard Chairs

Every type and size of springboard, slide, ladder, diving tower and accessory required in the modern indoor or outdoor pool will be found in the new 1938 Medart Water Sports Equipment Catalog, available to all interested parties. . . . Medart Equipment is precision-built throughout. . . . Your equipment problems will receive prompt attention if referred to the Medart Engineering Department for analysis—no obligation.

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PLAYGROUND APPARATUS

The Medart line is a "safety-first" line, safe to buy and safe to use. Medart Engineers will lay out your new playground—no obligation.

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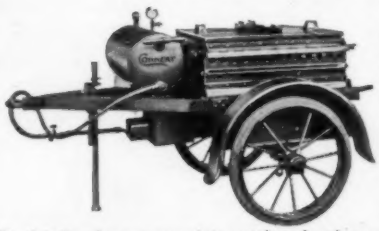
3536 DE KALB ST. - - - ST. LOUIS, MO.

Sales Engineers in all Principal Cities. Consult Your Telephone Directory

CONNERY'S TAR & ASPHALT HEATING KETTLES



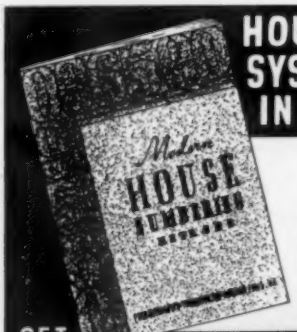
Style "J" 60-75-gallon oil burning kettle equipped with Timken Bearings, solid rubber-tired wheels and truck springs. A fine kettle for maintenance work and the price is low.

All sizes manufactured from 10 to 550 gallons.

Send today for our complete catalog showing our full line of Tar and Asphalt Heating Kettles, Spraying Attachments, Pouring Pots, etc.

CONNERY CONSTRUCTION COMPANY
4000 North Second St. Philadelphia, Pa.

HOUSE NUMBERING SYSTEMS EXPLAINED IN SPECIAL REPORT



A concise report covering all phases of house numbering and explaining systems which municipalities have found successful. Sent free on request.

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News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

THE NEW AUSTIN-WESTERN PATROL SWEEPER CAN BE MANEUVERED EASILY

Austin-Western Enters Small-Sweeper Field

A small, simplified sweeper that cleans 5½ feet of pavement at a single pass is now being produced by The Austin-Western Road Machinery Co., Aurora, Ill. Though it thoroughly sweeps any part of the street, according to the manufacturer, it was engineered primarily to clean the gutter area where dirt usually collects. It is equipped with two revolving brooms and can be used the year around to pick up litter, cinders, leaves, broken glass and even bricks.

The Patrol Sweeper, as it is called, is completely equipped and very compact. It is powered with a four-cylinder, 29-hp motor for operation on steep grades as well as on level pavements. To lay the dust and penetrate crusted dirt, it uses a pump-driven spray. To scour the pavement near the curb where dirt formations are thickest, it uses a bump-proof, fast-revolving steel broom that flares out to 32 inches. To pick up litter and leave a clean surface, it is equipped with a tough fiber broom measuring 36 inches in diameter. The rotation of this broom throws the dirt and rubbish into a 1-cubic-yard capacity trash box.

When the operator wishes to dump the load, he pushes a small hydraulic control lever which automatically raises and tilts the trash-box and deposits a compact load behind the sweeper. With this arrangement the sweeper can continue its work without backing up or tracking over the load.

New Chlorinators Mark Silver Anniversary

To celebrate its 25 years of service to the water-works field Wallace & Tiernan Co., Newark, N. J., has brought out a complete new line of visible vacuum chlorinators, shown for the first time at the A.W.W.A. convention in New Orleans.

The new chlorinators include six machines which are housed in modern, sheet steel pedestals with full-height removable sides for complete accessibility to the parts. This offers more roominess without increase in weight, and allows mounting of all pressure gages in the front of the pedestal where they may be easily checked. Hose and pipe lines are concealed within the pedestals, producing neater installations and saving floor space.

The machines cover a complete range of capacity from 0.03-pound to 6,000 pounds of chlorine per day, and manual, semi-automatic (automatic start and stop) or full-automatic control is available in any capacity. Of particular interest to the small water supply will be the Rotor type chlorinator, which has a maximum capacity of 5 pounds of chlorine per day and a minimum of 0.03-pound, and a new 12-pound maximum capacity automatic chlorinator which has been designed to bring automatic proportioning within reach of the average small water supply. For larger installations, requiring several hundred pounds of chlorine per day, there are the two new Master de luxe chlorinators which incorporate every new improvement in chlorine control.

Yeomans Acquires Simplex Sewage Line

Yeomans Brothers Co., 1433 Dayton Street, Chicago, Ill., manufacturer of sewage and sludge pumps for more than 25 years, now announces that it has acquired from the Simplex Ejector and Aerator Corporation, also of Chicago, all patterns, drawings, engineering data and the exclusive right to the use of the established trade name covering Simplex aerators, distributors, dosing siphons, combination aerators and settling tanks and sludge division boxes and clarifiers. All this equipment will now be manufactured in the Yeomans plant and will be distributed through their organization of sales representatives in the United States and foreign countries.

Both the Simplex products and the Shone pneumatic ejector, an acquisition of Yeomans Brothers Co. in 1916, originated in England. Sir Isaac Shone, a noted British engineer, invented and patented the Shone ejector over fifty years ago, and the first installation of Simplex aerators in England was made in 1918. And Simplex appliances, like the Shone ejector, were brought to this country by an Englishman, William Buckley, who is now President of the Simplex Ejector and Aerator Corp.

Mr. Buckley will for some time act in a consulting capacity for Yeomans Brothers Co., and the company will furnish recommendations and engineering data to sanitary engineers in connection with both pumps and treatment apparatus.

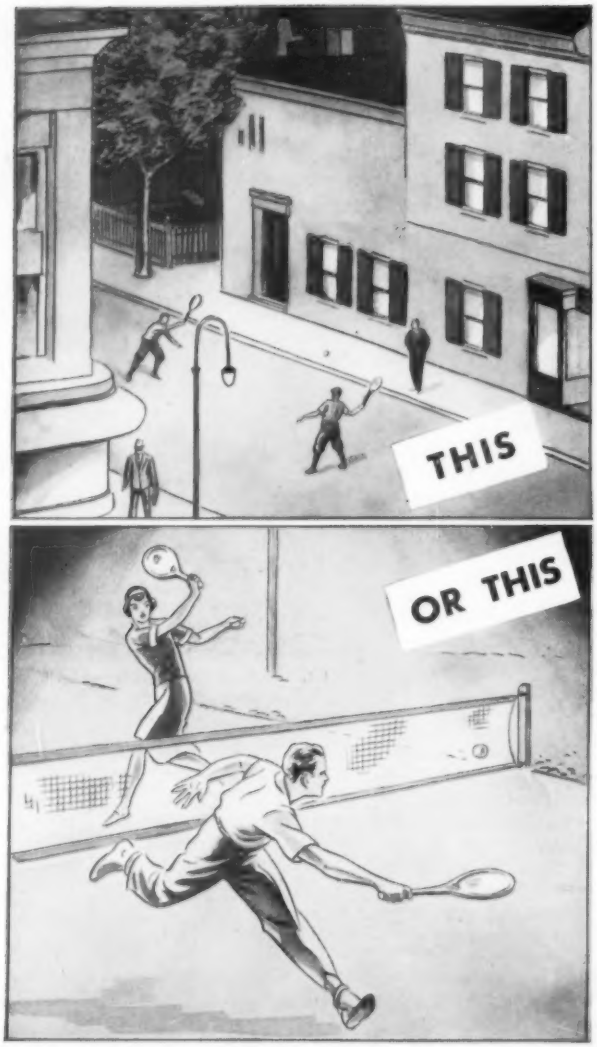
Instant Dumping with New Type of Bucket

A new product for users of hauling equipment is the Brooks Load Lugger, made by the Brooks Equipment & Manufacturing Co., 408-10 Davenport Road, Knoxville, Tenn. Production of this equipment has only just started, after months of designing and testing.

In cities, on busy or narrow streets, the Load Lugger serves remarkably well in sewer excavation and other types of public work; in fact, for hauling and transferring any material loaded by hand.

The bucket is made of one piece, can be mounted on any truck, and dumps easily, with or without leaving the truck. No counterweight is necessary on the front of the truck, and it has a direct drive from the power take-off to the hydraulic pump hoist assembly, thus requiring no expensive high-pressure hose connections such as are constantly needing replacement. The hoist used is hydraulic and positive in both up and down motions.

THE NEW BROOKS LOAD LUGGER MOUNTED ON THE REAR OF A TRUCK



WHY not take *full* advantage of the recreational facilities in your city parks? Don't force youngsters to play on dangerous streets after dark—install floodlighting on your tennis courts and other play areas to lengthen their useful hours. Give youngsters a safe, healthful place to play on these hot summer evenings.

Well-lighted playgrounds can go a long way toward solving the delinquent problem in your city. Let a General Electric lighting specialist help you plan a floodlighting installation for your park system. He will gladly suggest the most economical plan suitable for you. For further information, or the services of a lighting specialist, write General Electric Company, Schenectady, New York.

GENERAL ELECTRIC

The Murdock Outdoor Drinking Fountain

Ultra-modern, anti-freezing. Positively the most practical fountain for public service obtainable. Highly endorsed by over 800 municipalities alone.

Splendid for

PARKS, PLAYGROUNDS, ATHLETIC FIELDS, RECREATION CENTERS, OPEN SQUARES, PUBLIC STREETS

Modern type bubbler extends well above rim of basin so latter may overflow in case of drain stoppage thus preventing contaminated water reaching drinking supply.

If you desire to modernize old Murdock fountains, write for complete information to

The Murdock Mfg. & Supply Co.
Cincinnati Ohio

Makers of Outdoor Water Devices Since 1853

THE SMITH AIR COMPRESSOR Means LOW-COST Compressed Air

For drilling rock, breaking pavement, riveting, sand blasting, spray painting and general use with pneumatic tools. Used the world over to replace large, cumbersome compressors on a majority of all compressor work. Powered by a FORD MOTOR it gives smooth, low-cost performance.

Write for our new folder: "A Picture Story of the Smith Air Compressor." It illustrates the many uses of the Smith Compressor and Compressors built by users of the Smith Compressor Head and Accessories.

With a Ford Motor and Shop facilities you can assemble your own compressor. We will furnish a Smith Compressor Head and Accessories with instructions for mounting.

Address Inquiries to Desk K

GORDON SMITH & CO.
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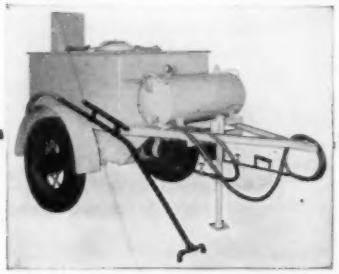

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Fire Proof—Oil Burning

Hand and Motor driven spray. Many sizes. Write for catalog.

Elkhart **White Mfg. Co.** Indiana

Stewart IRON AND WIRE FENCES

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Send for catalog giving complete details on Iron and Chain Link Wire Fence, Ornamental Iron and Wire Work and other Stewart Products

The STEWART IRON WORKS CO., Inc.

525 Stewart Block • Cincinnati, Ohio

"World's Greatest Fence Builders Since 1886"

A SOLAR OUTDOOR WASTE RECEPTACLE IN USE ON CANAL STREET, NEW ORLEANS

Raising Standards of Cleanliness in Cities

"Deposit Waste Here," say the trash receptacles made by the Solar-Sturges Manufacturing Co., Melrose Park, Ill., and most public-spirited citizens hasten to obey. Placed wherever unsightly refuse would ordinarily accumulate, these receptacles render a valuable service to cities desiring to maintain a high standard of cleanliness. They are attractive and decorative and come in a variety of sizes and colors for different uses. Enamel paint is baked on the smooth surfaces, and a reinforced steel construction reduces the usual amount of replacements. A choice of galvanized watertight inner containers or burlap bags is available.

The graceful lines of these receptacles create a favorable impression, but their all-steel fireproof construction, with joints permanently welded together, prove them to be utilitarian as well when placed on city streets and in public parks and playgrounds.

Police Motorcycles Use High-Frequency Radios

The increasing use of ultra-high frequencies in police communication has created a demand for an ultra-high-frequency motorcycle receiver capable of consistent and dependable performance. In response to this demand, Harley-Davidson Motor Co., Milwaukee, Wis., announces a new ultra-high-frequency motorcycle receiver, developed through the combined efforts of Harley-Davidson and the General Electric Co. Police departments already using the new receivers have commented on their excellent performance.

The receiver unit, developed and manufactured by the General Electric Co., incorporates a new super-regenerative circuit. It is essentially non-radiating and provides adjustable carrier-off noise suppression, rapid and effective automatic volume control, discrimination against ignition noise, and exceptionally good sensitivity and selectivity. Temperature changes have little or no effect upon it.

The circuits are of the fixed tuned type and can be adjusted to any frequency from 30 to 42 megacycles. The tuning controls are provided with locking devices which prevent shifting of adjustments. Other features include ceramic insulation in all radio frequency circuits, sturdy construction and ready accessibility of all parts for inspection and service.

Luminous Markings for Traffic Stripes

One of the greatest destroyers of white road paints is the ultra-violet ray of the sun, which causes cracking, flaking and discoloration. With the new Refractolite process of highway marking, first introduced at the Road Show in Cleveland last January, a liquid binder compound is used upon which such rays have little or no effect.

The binder compound has the appearance of any paint and is applied similarly, with a brush or by any standard road-marking machine to which is attached a trailer. The trailer device drops a coating of glass beads, approximately 0.015 inch in diameter, onto the freshly marked traffic line, and the compound in drying adheres firmly to these glass spheres. It sets in a few minutes, and the combination is dry and usable within 25 minutes under most adverse conditions. Such quick drying produces a considerable saving in labor costs.

The principle of the glass spheres is that of both refraction and reflection. They absorb the rays of light playing upon them and return them to their source practically parallel to the ray received. An added feature is that any ray returned by a sphere picks up the color of the compound into which the spheres are imbedded.

Highway Safety Products Corporation, Empire State Building, New York, has perfected this Refractolie process. Its glass spheres act as miniature mirrors and reflect the rays of a car's headlights, producing a luminous streak visible in daylight, fog or rain alongside of and beside an approaching car, no matter how bright the car's headlights may be. Tests have been made on Goodyear scrubbing machines to prove the combination still in perfect condition after 125,000 strokes. It has been demonstrated on many state highways to prove its inviolacy to ultra-violet rays and its greater visibility at night, and is being intensively watched by all those interested in promoting safer driving on highways.

Commercial Tire Revolutionized

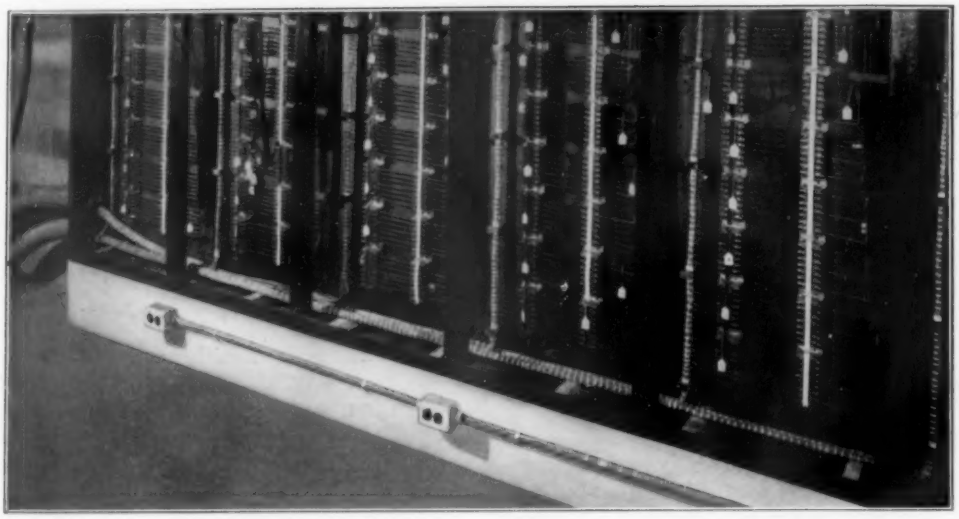
The recently announced Hi-Flex cotton tire cord, designed primarily to reduce tire heat generated in high-speed service, is a feature of the new Silvertown truck and bus tire just brought out by the B. F. Goodrich Co., Akron, Ohio.

The cord has made possible a completely new tire building method. So-called artificial stretch is removed before the cord is built into the tire, resulting in a compact, small-gage product which returns to its original position after being stretched. The old-style cord frequently lost its elasticity early in hard service. The manufacturer is able to use more rubber between cords, and slippage of fibers against each other is prevented, thus reducing friction and internal heat. High working stresses are more easily withstood, and shoulder and sidewall breaks resulting from excessive flexing are materially reduced.

Ply-Flex, which distributes stresses throughout the tire and prevents local weaknesses, and Ply-Lock, which protects the short plies from tearing loose above the beads, are two other Goodrich construction features which are incorporated in the new tire.

AT THE CITY INCINERATOR SITUATED ON THE EAST SIDE OF PONTIAC, MICH., THIS NEW G.M.C. TRUCK DUMPS ITS LOAD OF GARBAGE BY MEANS OF A HYDRAULIC HOIST WHICH LIFTS THE BODY TO A 70 DEGREE POSITION

Outmoded garbage-removal units in the city are gradually being replaced by similar trucks mounted with Refuse-Getters



Lives depend on these LATOX Cables

Down underneath the water of Boston Harbor automobiles whiz along safely at thirty miles an hour. To insure the safety at all times of this traffic underneath Boston Harbor a great deal of the equipment must be controlled from a central point. Fans, pumps, lights, signalling devices, all must be instantly responsive if safety is to be continued.

In the tunnel, space for control cable conduits was costly, consequently, small diameter, dependable cables were of vital importance. The picture above shows two Simplex-LATOX insulated cables entering the cable terminal board at the Boston end of the tunnel. These cables, 259-conductors each, are only 1½″ in diameter. If they had been insulated in the conventional way they would each be more than 3″ in diameter.

Simplex-LATOX rubber insulation is designed to provide small diameter, low weight, moisture-proof cable for supervisory controls of utility substations, police and fire alarm systems, electric or steam railroad control and signal systems. For all these applications, Simplex-LATOX insulation combines the advantages of rubber and paper insulation for almost the small diameter and weight of paper insulation.

Simplex-LATOX is waterproof, permanent and retains indefinitely the qualities of high-grade rubber insulation. It is made directly from prevulcanized rubber latex having uniform physical and electrical characteristics.

A booklet describing this new insulation is ready for distribution. Return the coupon below and we will send you one gladly.

Simplex Wire & Cable Co., 79 Sidney St., Cambridge, Mass.

Simplex – LATOX

Light wall insulation made directly from rubber latex

Name_____

Company_____

Street_____

City and State_____

W. H. Day Joins Peerless Pumps

W. H. Day, who for the past 12½ years has been Vice-President in Charge of Sales for the Pomona Pump Co., has accepted a similar position with Peerless Pump Division of Food Machinery Corporation, which has turbine pump manufacturing plants at Los Angeles, San Jose, and Fresno, Calif., and Massillon, Ohio. Mr. Day's office will be in Los Angeles.

For two years before coming to the Pomona Pump Co. in 1925, Mr. Day was President of the W. H. Day Co., of Milwaukee, Wis. For the thirteen previous years he was Sales Manager for the Milwaukee works of the Worthington Pump and Machinery Corporation. He also was Vice-President and General Manager of the Power Equipment Co., of Minneapolis, and Sales Manager of the St. Paul branch of Fairbanks-Morse and Co.

Pictorial Account of a Long Protection Record

An attractive new booklet, "Water Works Protection," recently brought out by The Barrett Co., 40 Rector Street, New York, depends largely upon photographs to describe the lining and coating of water-supply conduits and distribution systems with Barrett coal-tar pitch base coatings.

With 84 years of continuous experience in the processing of coal-tars for technical use and with a decade of specialized experience in the protection of underground pipe, Barrett has been able to offer a valuable service to water-works engineers. Some of the important projects which have used Barrett protection are pictured in the new booklet.

Water and sewerage engineers interested in the protection of steel and cast iron water mains and special water structures, such as dams, penstocks, water systems, etc., may secure a copy of "Water Works Protection" direct from the Barrett Co. by mentioning THE AMERICAN CITY.

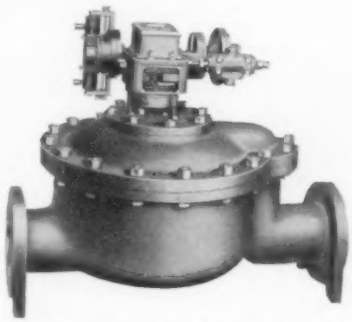
PIPE CAST AT BESSEMER, ALA., BY THE U. S. PIPE & FOUNDRY CO. FOR USE AT THE MIAMI BEACH SEWER PROJECT

The pipe has been lined with Barrett special water-works enamel and a Barrett formula whitewash applied inside and out

Combination of Meter and Treatment Equipment

The National Meter Co., 4207 First Avenue, Brooklyn, N. Y., is offering its Empire, Crown and Gem water meters equipped with the Proportioneers Chlor-O-Feeder for water chlorination and p-H control. The Chlor-O-Feeder, when attached to any of these meters, is automatically controlled and operated by the flow of the water through the meter, and proportions the treatment to every variation of flow, handling any pipe size from ½-inch to 12-inch and pressures up to 150 pounds per square inch. Regardless of pressure variations, the Chlor-O-Feeder measures the treatment, builds it up to existing line pressure and injects the chemical solution into the passing water stream without impairing the accuracy of the water meter.

The Empire meter is a balanced oscillating-piston, positive-displacement type, and the Crown meter is of the rotary-piston positive-displacement type, and specially suitable for use when there is a great deal of sediment in the water. Both



AN EMPIRE WATER METER EQUIPPED WITH A CHLOR-O-FEEDER

are made in ⅝-inch to 6-inch sizes. The AA-X Gem meter is of the velocity or current type and is intended for use whenever very free delivery is required on large rushing flows, and is made in sizes from 2 to 12 inches.

Pomona's Expansion in Turbine Pump Field

A reorganization plan instituted more than two years ago by the Pomona Pump Co., of Pomona, Calif., has culminated this month in a number of changes in their executive personnel. George A. McKenna, President and General Manager of the company since 1925, has announced the following:

D. C. McKenna becomes Vice-President and Secretary-Treasurer. Jule H. Coffey is appointed Vice-President in Charge of Sales. Claude C. Cook, in charge of the St. Louis plant, now comes to Pomona as Vice-President in Charge of Manufacturing. Charles L. Barrett is named General Sales Manager, R. D. Schott Chief Engineer, Barclay Mackinnon Comptroller, while I. A. Oliver continues as Consulting Engineer.

THE CITY STREETS OF TACOMA, WASH., BEING SMOOTHED OUT BY AN ALLIS-CHALMERS SPEED PATROL

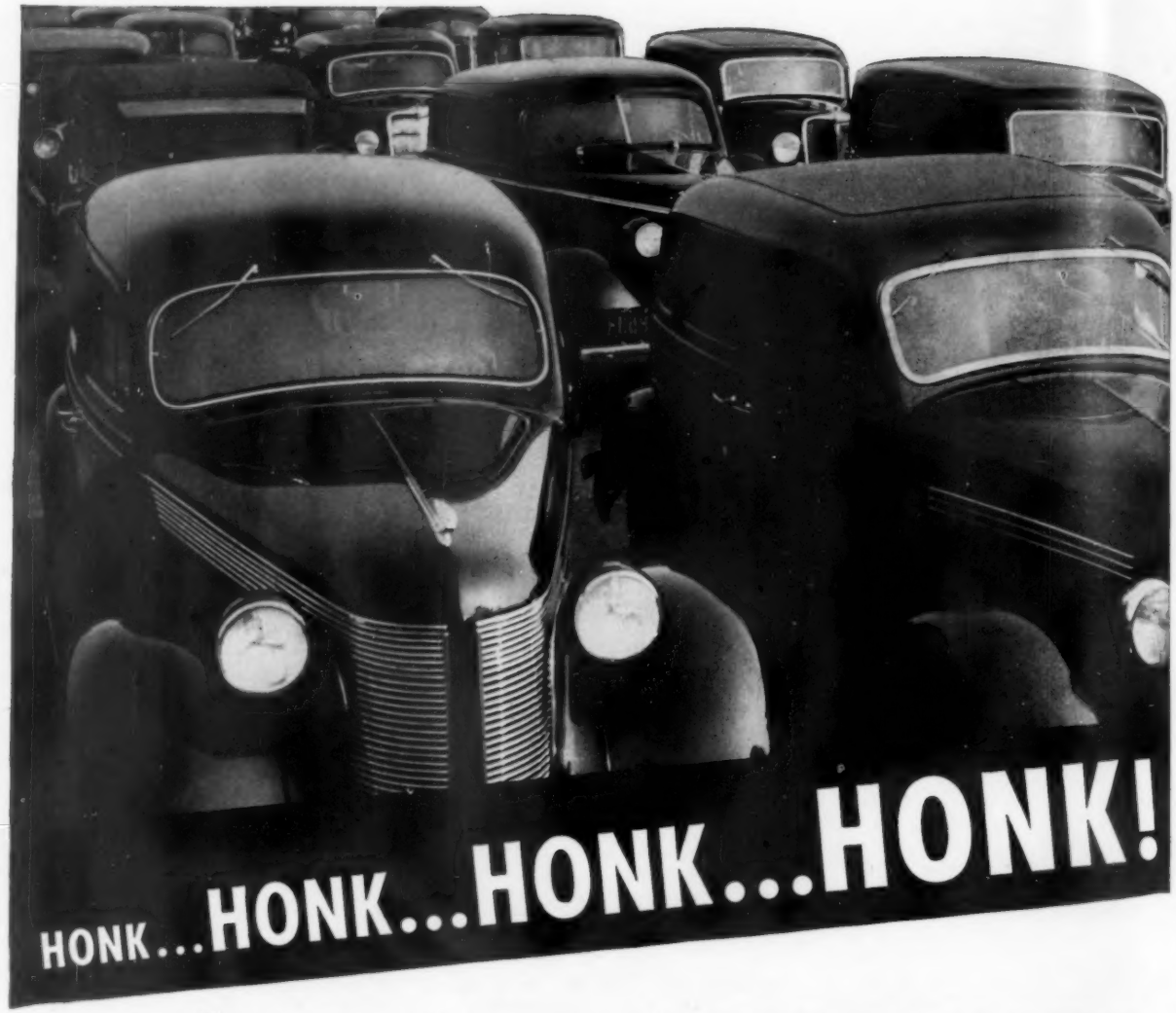
Since 1936, Pomona has been engaged in extensive research necessary to anticipate and meet requirements of pump users. This research has encompassed not only sales expansion but also expansion in personnel and manufacturing equipment. Part of this project of planned progress was fulfilled in the latter part of 1936 with the establishment of the St. Louis plant, where quicker delivery service proved an immediate advantage. The plant, an 11-acre site, now accounts for about 40 per cent of the company's output. Coincident with the efforts being expended in the St. Louis area was an aggressive development of additional foreign outlets.

At Pomona, numerous physical changes in manufacturing and engineering research facilities have been going forward. The Pomona plant has been enlarged to cover three city blocks and to increase railroad frontage. A new foundry building and equipment have resulted in increased production facilities. A new test laboratory has provided the means for Pomona's engineers to make the necessary experiments in building a line of turbine pumps, and these experiments have formed the basis for the knowledge now being applied to the low-lift and mixed-flow pump lines.

As a result of this new activity and growth, the welding division of the Pomona plant is being moved this month to its own building. Plans are also being drawn for a new office building to more efficiently combine the increased functions of the organization.

Distributors Appointed by Hercules

The Hercules Company, Marion, Ohio, has announced the appointment of the following distributors to handle the sale of Hercules Road Rollers and Ironerolls in their respective trade areas: Berry & Brown, Marianna, Fla.; Drott Tractor Co., Iron River, Mich.; Jenison Machinery Co., San Francisco, Calif.; George Malvese & Co., New Hyde Park, Long Island, N. Y.; and Orange State Motor Co., Tampa, Fla.



Tangled traffic . . . with its constant menace to the work of police and fire departments . . . is only one part of the tremendous Public Safety problem faced by municipalities today.

Losses to person and property due to *preventable* traffic accidents, crime, and fire run to *billions* of dollars.

Efficient electrical Public Safety equipment can play an important part in preventing these losses . . . at only a tiny fraction of the present enormous cost of the losses.

Graybar offers a convenient source of *all* Public Safety equipment . . . Modern Traffic Control . . . Union Metal Street Lighting . . . Parking Meters . . . Horni Fire-Alarm Systems . . . Western Electric Police Radio. Graybar offers, too, experienced advice on technical problems, and behind every product stands a Graybar reputation for dependability since 1869. Write for information!

OFFICES IN 85 PRINCIPAL CITIES. EXECUTIVE OFFICES: GRAYBAR BUILDING, NEW YORK.

Graybar

PUBLIC SAFETY EQUIPMENT DISTRIBUTED BY GRAYBAR:

THE KWIK-MIX CONCRETE MIXER CO.'S NEW 3½-S MASCOT

A Compact and Light Concrete Mixer

As an advance in small mixer design, the Kwik-Mix Concrete Mixer Co., Port Washington, Wis., has built the new 3½-S Mascot weighing only 930 pounds.

To attain its compact construction, the air-cooled gasoline engine has been mounted within the natural over-all dimensions of the mixer proper, thus eliminating an additional structure for this purpose. As a result, the mixer requires less space on the job and can be easily moved by one worker.

The mixer's end discharge feature permits wheelbarrow spotting, without turning or backing, in any congested job operating space. An easily handled tilting mechanism is conveniently located for the operator, and a quick-acting friction brake stops and holds the drum in any discharging position. Pneumatic tires, light weight, correct balance, spring mounting, and a high-strength box type welded steel plate axle all contribute to its high-speed trailing.

New District Manager for Allis-Chalmers

William Arthur has been appointed Philadelphia District Office Manager of Allis-Chalmers Manufacturing Co., with headquarters in the Broad Street Station Building, to succeed the late J. E. Wray. Mr. Arthur, who is widely known for his engineering contributions to electric traction, since 1931 had been the company's special representative for railway traction and mercury arc rectifiers in the East, attached to their New York and Philadelphia offices.

For the six years prior to his connection with the company he was Manager of the Traction Department and Assistant to the Vice-President of the American Brown Boveri Electric Corporation until its electrical activities were absorbed by Allis-Chalmers.

Mr. Arthur holds a number of patents covering control arrangements for electric trains, power-saving devices for electric railways, and various other inventions. Means were originated by him for eliminating low power factor and for decreasing line losses in alternating current railway systems. Besides being the author of "Trolleyman's Handbook on Efficient Car Operation," he has written numerous technical articles and reviews.

Transfer of Frank F. Wise to Western Gas Division

The appointment of Frank F. Wise as General Manager of Koppers Company's Western Gas Division at Fort Wayne, Ind., has been announced by Walter F. Perkins, Vice-President in charge of the company's manufacturing divisions. Mr. Wise has been transferred from the company's Engineer and Construction Division, Pittsburgh, Pa., with which he has been associated since he was graduated from Carnegie Institute of Technology in 1916. He has been construction engineer on a number of large contracts for Koppers Company.

Mr. Perkins has also announced that R. A. Wickes has become Sales Manager of the Western Gas Division and that A. G. Hall will remain as Works Manager.

The Western Gas Division manufactures valves, sluice-gates and other equipment for water-works and sewage-disposal plants, as well as products for the gas industry, and special engineering for the chemical industry.

Simplified Design a Simplex Objective

In designing the modern filtration plant, simplification of the plant layout is as important as the satisfactory operation of plant processes and equipment.

The Simplex Valve & Meter Co., 68th and Upland Streets, Philadelphia, Pa., believing that plant equipment must follow in design and operation the improvements in general plant design and methods, has developed the Simplex type S controller for installation in a vertical line and the Simplex air-operated filter gages.

The controller differs from the standard form only in that the diaphragm chamber and scale beam assembly are retained in a horizontal position. But its direct results are simplification of piping layout, reduction of unrecoverable head loss across the controller, and the utilization of more of the available operating head by reducing pipe friction, according to the manufacturer. It can be conveniently adapted to master, clear well, or table control, as may be desired.

The air-operated filter gages offer a means of simplifying the pipe gallery. Consisting of standard Simplex mercury float operated gage units of any type, they are actuated by differential air pressures rather than by the conventional hydraulic pressures. Air operation of filter loss and rate gages helps to prevent the possibility of error from the collection of sand or dirt in the float unit and allows the gage cylinders to be located under the operating table. This eliminates the necessity for suspending the gage cylinders.

New Flushers Used for Farm Fire-Fighting

The U. S. Department of Agriculture, in a recent bulletin, stated that the yearly fire loss on farms is $100,000,000, and that one-half of this loss could be prevented if farmers had available sufficient water and fire-fighting equipment.

The new Etnyre combined street flusher and Farm Fire-Fighter manufactured by E. D. Etnyre & Co., Oregon, Ill., is designed to solve this farm fire hazard. A special fire-fighting and suction filling attachment is built into the flusher. It is attached to the powerful flusher pump, with pressure up to 125 pounds, which can be used to pump or discharge water. Two sizes of pumps are used, 460 gpm and 625 gpm, which are powered by a separate 4- or 6-cylinder engine. A fire hose of adequate length is kept constantly attached, and the flusher tank, with sizes up to 3,000 gallons, is kept filled with water. Mounted on any make of fast-traveling motor truck, the equipment can get to a farm fire speedily and water from the flusher tank can be applied to a fire instantly. Also, while this supply of water is being used, another line of hose can be run from the suction filling attachment to cisterns, water-tanks and creeks if necessary.

Farmers have had insurance rates reduced where this equipment is located at a nearby community. For small communities that have heretofore felt they did not have sufficient need for a street flusher, there is now available an all-purpose unit with fire-fighting attachment and additional features for street sprinkling, etc.

ETNYRE COMBINED STREET FLUSHER AND FARM FIRE-FIGHTER WITH HOSE ATTACHED TO FLUSHER PUMP

"Save Lives with Light"

• • • DETROIT CUTS NIGHT FATALITIES 82% WITH MODERN STREET LIGHTING

• Detroit is "painting" its streets with white light to eliminate night automobile fatalities. Prior to 1936, accident records showed a ratio of seven persons killed at night to one killed during the day. Then the city modernized the lighting on 31 miles of its more heavily-traveled streets. As a result the ratio between night and day fatalities was reduced from 7 to 1 to the startling low figure of 1.2 to 1. Little wonder this city plans additional miles of lighting modernization.

In Detroit, as in hundreds of other safety-minded cities, Union Metal heavy-duty steel standards are recognized as an essential feature of modern street lighting. With their use, the lighting units can be placed at the exact height and distance over the street necessary for maximum visibility. Their sturdy construction makes for long life with minimum maintenance. Union Metal standards are ornamental as well as useful and, because of attractive design, their installation is welcomed in business and residential sections alike.

Let Union Metal show you how light can save lives on your city's streets. The services of our engineers are available to you—no obligation.

THE UNION METAL MANUFACTURING CO.
CANTON, OHIO

Union Metal Standard Design No. 4790 installed by Detroit, Mich.

Pittsburgh Equitable Markets New Water Meter

The Pittsburgh Equitable Meter Co., of Pittsburgh, Pa., displayed its new IMO meter for the first time at the American Water Works Association convention in New Orleans.

The Pittsburgh IMO meter derives its name from a portion of the firm name, the "Aktiebolaget IMO Industri" of Stockholm, Sweden, which holds the basic patents on the IMO design. The Pittsburgh Equitable Meter Co. has been assigned the sole license to manufacture and sell meters in the United States, Canada and Mexico under these patents.

The manufacturer claims the IMO is the most accurate water meter ever commercially built. Published accuracy curves show 90 per cent registration at 1/12-gallon per minute, while at the rate of ¼-gallon per minute the IMO is said to measure 100 per cent. From this point on, out to its maximum rate of 20 gallons per minute, shows a flat curve.

THE MEASURING CHAMBER — THE PITTSBURGH IMO WATER METER — THE ROTORS

The success of the Pittsburgh IMO is said to be based on its unique measuring chamber and operating units. These consist of three screws which mesh with each other and fit the bore of a casing. These screws are called rotors, while the surrounding casing is the measuring chamber. Water enters the measuring chamber from the bottom and, as it is forced upward by line pressure, causes the rotors to turn from its path. They are said to rotate and be propelled by the surrrounding medium (water) in a perfectly continuous flow. The threads on the rotors act as a continuous piston which always moves in a forward direction. The register on the Pittsburgh IMO is driven by the action of the center rotor through an oil-enclosed gear train.

Staniford New President of Mack-International

At a meeting of the Board of Directors of Mack Trucks, Inc., on May 3, F. F. Staniford was elected President of the company's subsidiary, Mack-International Motor Truck Corporation, as well as a Vice-President of the parent company. In his new capacity he will have charge of all sales activities.

Mr. Staniford started with Mack in 1911 as a member of the sales force. He has been successively Manager of the company's Albany Branch and Vice-President in charge of its Northeastern Division with headquarters at Albany, N. Y. He succeeds the late W. R. Edson, who passed away on April 14.

Cab-Over-Engine Truck Introduced by Ford

Featuring greater load space, driver comfort with short wheelbase, easy cab accessibility, conveniently arranged controls and openings for oil, water and fuel, a new cab-over-engine truck is announced by the Ford Motor Co., Dearborn, Mich. This is available in the 101-inch and 134-inch wheelbases.

The 101-inch wheelbase chassis is offered with stake platform body, with dump-body, and as cab and chassis. The 134-inch is offered with stake platform body and as cab and chassis. Both have the drive-away type of chassis for mounting special bodies, which include hood, cowl and windshield. A foreshortened hood, carrying the Ford oval truck grille, adorns the front end of the truck. The radiator cab is combined with the customary V-8 emblem, an arrangement which permits filling the radiator without raising the hood. The extra-wide windshield is hinged at the top and divided into two sections. Each section may be raised outward to a nearly horizontal position.

Fuel and oil are replenished without raising the hood or opening the engine cover. The fuel filler tube extends outside the cab at the right rear corner, and the oil filler cap protrudes through the engine cover inside the cab. An oil-proof rubber shield prevents fumes from entering the cab.

Gear-shift and hand brake are curved forward so that they are conveniently operated by an up-and-down movement instead of the conventional forward-and-back.

Mail the coupon below for complete description and large cross-section drawing of the . . .

BYRON JACKSON

SUBMERSIBLE

DEEPWELL TURBINE PUMP

so named because the short coupled, direct-connected pump and motor operate *submerged* in the well. Crooked or poorly constructed wells constitute no problem. Eight years of continuous operation affords conclusive proof of the low cost, trouble free service rendered.

A radical departure from the conventional type deepwell turbines, the Submersible possesses features too numerous to be described here. *That is why we urge you, if you have a pumping problem, to mail the coupon below.*

Established 1872

BYRON JACKSON CO.

Factories at:
Berkeley & LOS ANGELES, California
Bethlehem, Pennsylvania
Sales Offices at:
New York - Pittsburgh - Chicago
Atlanta - Fort Worth - Houston
Salt Lake City - Fresno

MAIL TO BYRON JACKSON CO.
Dept. M-15
P. O. Box 1307 Arcade Station
Los Angeles, California.
Please send Submersible brochure and large cross section drawing to

Name.....

Position.....

Address.....

City..... *State*.....

"...It Was A Dark Street..."

". . . the street was so dark I couldn't see until too late." Over and over again these words are forming part of the testimony at inquests and in lawsuits resulting from night auto accidents. Not only accidents, but crime statistics too, in every large city point an accusing finger at the costliness and danger of dark, poorly lighted streets.

L-M STREET LIGHTING MAKES SAFE STREETS

Safe for the driver, safe for the pedestrian, unsafe for the criminal . . . that is the kind of street lighting L-M equipment offers you. Note the clear visibility on the typical L-M lighted street in the photo at the left. By daylight L-M Standards and Luminaires add ornamental distinction to any street's appearance. An L-M illuminating engineer will gladly study your street or highway lighting problem and recommend the right equipment for your particular needs. Write to Line Material Co., South Milwaukee, Wisconsin, for full street lighting information.

LINE MATERIAL CO.

Outdoor Lighting

A Section of THE AMERICAN CITY
Devoted to the Lighting of Streets, Highways, Bridges, Airports, Athletic Fields and Parks, and the Floodlighting of Public Buildings.

It's Done with Prisms—See the Results

GLIMPSE OF DEMONSTRATIONS IN LIGHT AND VISION INSTITUTE, NEW YORK CITY

(Left) At top are photographs of applications of the right equipment beneath, with technical results charted at bottom; suitable for lighting a yard or a street, interior of a municipal utility plant, and a court room; the open booth, with the white and black reflectors on the floor, proves the superior efficiency of the prismatic method of gathering and directing where wanted a high percentage of the light from a lamp. (Right) Holophane Contro lenses in ceiling, all concentrating on the operating table; at each side are demonstration booths, and in the ceiling at the far end are "Inbilt" units

PRACTICAL demonstrations of efficient outdoor and indoor lighting may be seen at the Light and Vision Institute established at 342 Madison Avenue, New York, by the Holophane Co., embodying 40 years' experience in utilizing most of the 50 per cent upward wastage of any open light. The accompanying views show some of the demonstration booths where the principles of reflection (getting all the light there is) and refraction (bending it onto the surface to be lighted) are shown visually with practical clarity.

Each demonstration shows the actual equipment, charts of the technical results obtained, and an illuminated photograph of a typical application of the particular principle and light unit demonstrated. One of the outdoor lighting demonstrations, for instance, shows the use of the No. 832 refractor efficiently lighting a yard. The larger sizes are used for street and highway lighting in New Jersey, as described on page 129.

In the center of this room is a hospital operating system such as was recently installed in six operating rooms of the Buffalo, N. Y., general hospital. Energy to the amount of 4.2 kw is directed piecemeal or in toto onto the operating table by means of 21 Holophane Contro lenses of 24 inches each. At the far end of this room are installations of various types of Inbilt lighting for numerous purposes, including tunnel, blackboard and jail lighting. Visitors to this exhibit will receive a cordial welcome.

Brightly Lighted Hiawatha

AMONG 77 Kansas cities of the second class, Hiawatha ranks No. 11 in per capita expenditure for street lighting, the figure being $1.75. We have a population of 2,797; assessed valuations of $2,777,003 for real and tangible personal property, and $536,346 for intangible personal property; city tax rate of 12.45 mills, total rate of 31.04; total bonded debt $49,345 on October 1, 1937.

The business district and about three-fourths of the residential area is lighted by a white-way system and the rest by an overhead system. All the busier intersections and streets have white-way lighting. The white-way lighting is extended as paving or curb and gutter is extended.

The standards consist of a base which is cast to order for the city with 3-inch pipe set in the top of the hose with a lead joint. The globe holder was also made to order and takes a 6-inch globe-bottom. We use 6 x 12-inch Monax chip-proof balls or globes in the residential and 6 x 14-inch balls in the business district. The business district has four 2,500-lumen lights on each side of the street in each block, and the residential district has two or three 1,000-lumen lights on each side. The overhead system has one 1,000-lumen light at each intersection. The system is a straight 6.6-ampere series system. Current costs about $275 per month for approximately 550 lamps.

Parkway cable is used on all the white-way systems, and where it runs under a continuous sidewalk on Oregon Street it is in a tile duct and can be pulled for repairs.

W. H. SUNDERLAND,
City Engineer, Hiawatha, Kansas.

Says the Governor of New Jersey:

THE State Highway Department and many municipal officials throughout New Jersey have shown their desire to provide, through a logical program, the safest thoroughfares which man can build. This is evident by the contracting for the improvement of lighting conditions on more than 140 miles of state highways, within municipal boundaries, since last December. Officials in more than 70 communities have sought and received cooperation of the State Highway Department in starting to modernize for greater night-time safety.—A. HARRY MOORE, Governor of New Jersey, in *New Jersey Municipalities*.

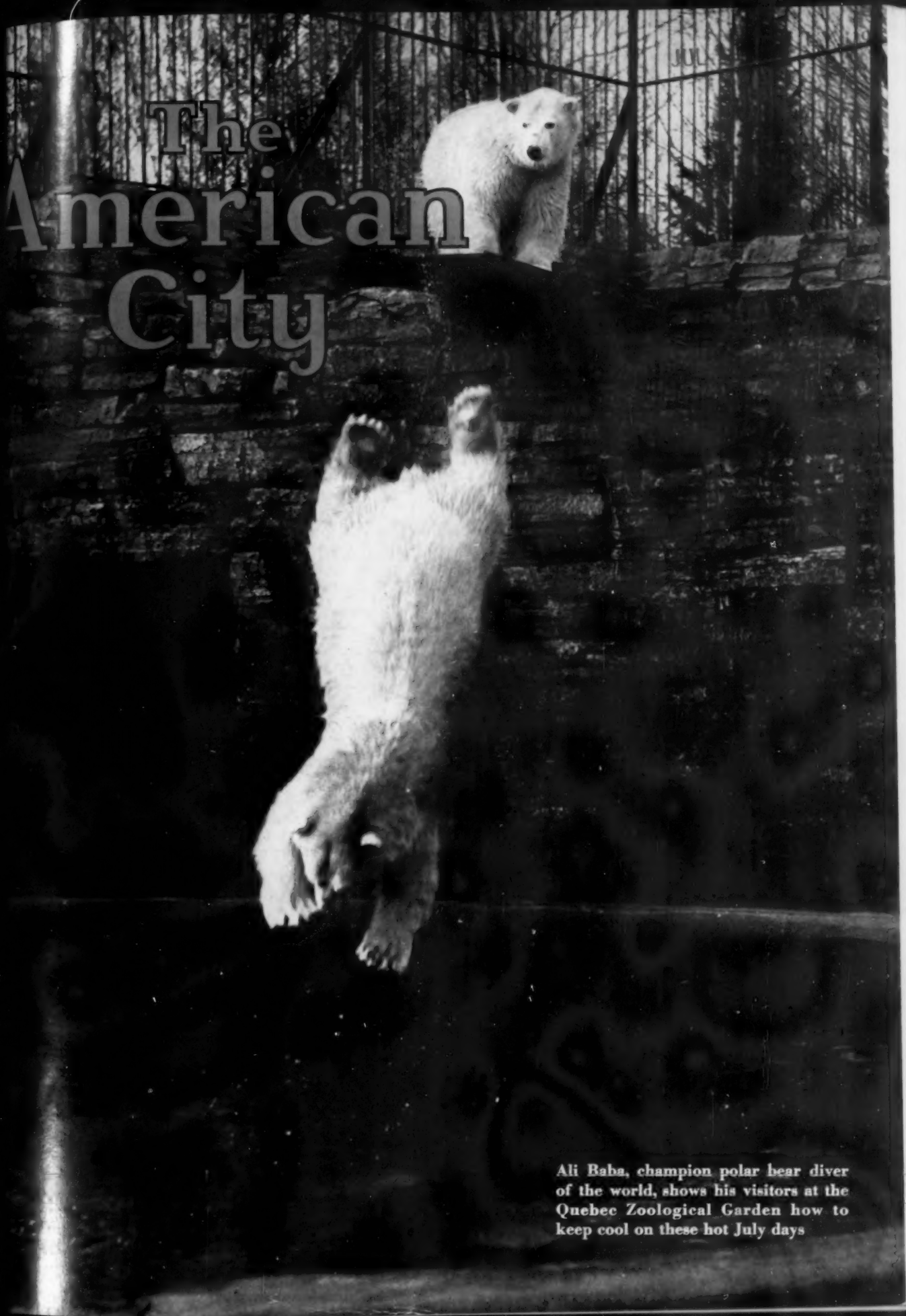
BEFORE

These three photographs taken with 10 minutes exposure lens at F 16, show 600-lumen lamps on Route 4 as follows: (1) north from Sea Girt Avenue, Sea Girt; (2) north from Allaire Road, Spring Lake Heights, (3) south from Warren Avenue, Spring Lake Heights, New Jersey

AFTER

These three photographs were taken at exactly the same locations and with the same timing and lens opening. They show the new lighting installed by the state of New Jersey and the Jersey Central Power and Light Co., in cooperation. All these pendent luminaires are designed to confine most of the light to the roadway by the use of Holophane 11-inch B-way Asymmetric bowl refractors. The mounting height is 25 feet, spacing 200 feet staggered, lamp size 6,000 lumens. Several thousand of these luminaires have been installed to provide safety lighting for rural areas

The American City



Ali Baba, champion polar bear diver of the world, shows his visitors at the Quebec Zoological Garden how to keep cool on these hot July days